JULY 11, 1960

# PAPER TRADE JOURNAL

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expands and modernizes, cocks eye on Common Market prospects

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what happens? Special report on Wahlstrom's entirely new theory

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pioneered in utilization of red alder, installs special barkers

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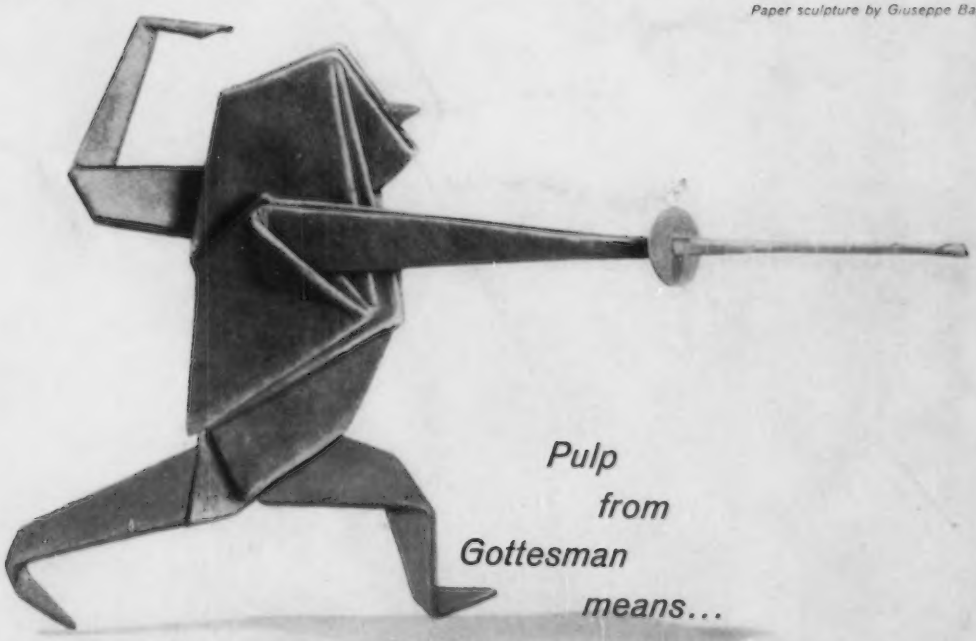

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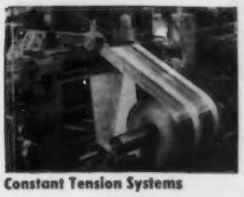

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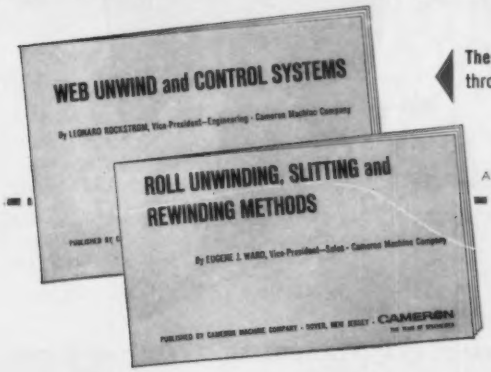
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**REMEMBER THESE DATES**

August 22-24. TAPPI Alkaline Pulping Conference, Multnomah Hotel, Portland, Ore.

September 6-9. CPPA Summer Meeting, Technical Section, Banff Springs Hotel, Banff, Alberta, Canada.


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**No. 65 — Peroxide Bleaching of Southern Pulps.**

**No. 66 — Becco Laboratory Procedures for Pulp Bleaching, 1955 Ed.**

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**No. 92 — Peroxide Bleaching of Chemical Pulps.**

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Looking for a way to use greater amounts of low-cost, more plentiful pulp—without capital investment for bleach equipment? Then let a Becco Sales Engineer show you our new technique* which allows you to bleach in the same equipment regularly used for the manufacture of cold caustic pulp.

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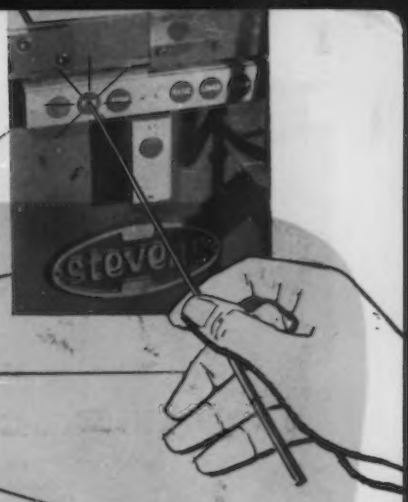

# Magic

**with the stevens instantaneous unstacker and trimmer loader**

one man . . . the trimmer operator, working alone, does the whole job of unstacking and trimmer loading by simple push button control. He can increase trimmer production from 30% to 40% a day because there's **no waiting . . . no separate unstacker . . . no separate trimmer loader . . . no helper . . . no lost motion . . . no lost production . . . no extra floor space needed.**

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*Idea submitted by Clarence Wentz, Crossett Company, Crossett, Ark.

Photo by: Rhodes Studio, Crossett, Ark.

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a Hamilton Felt that will.
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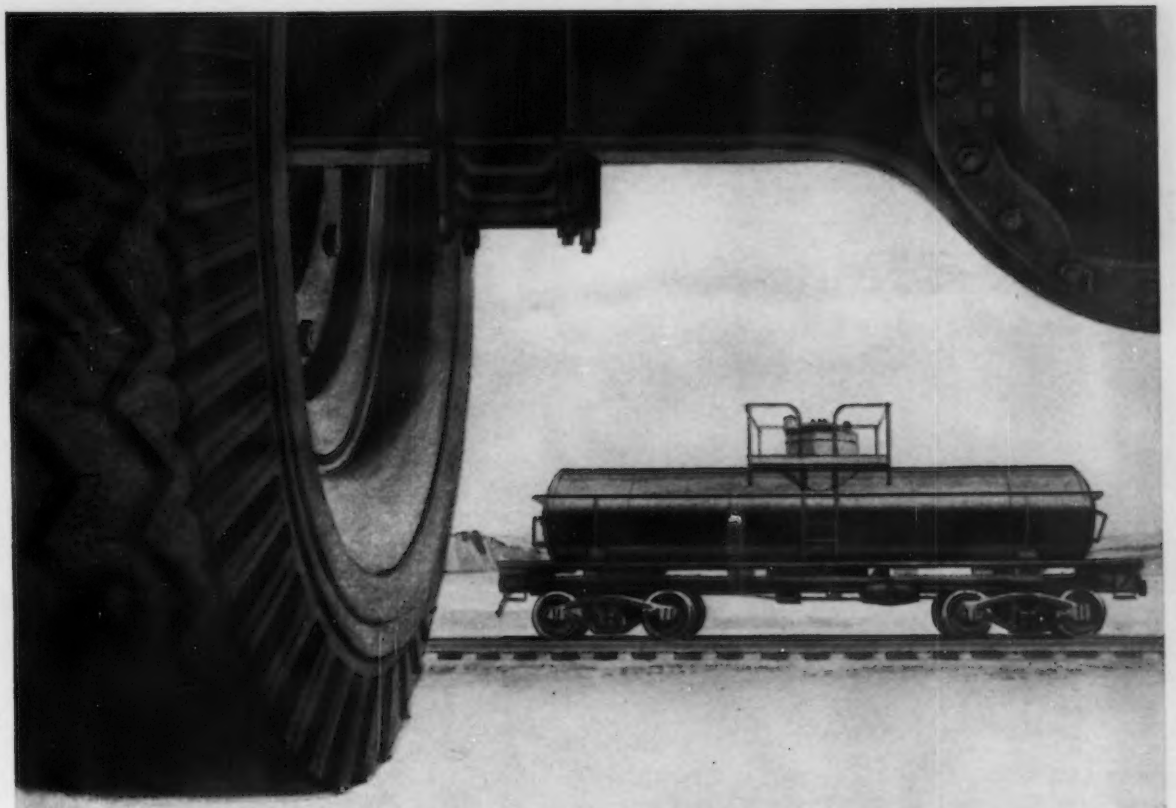

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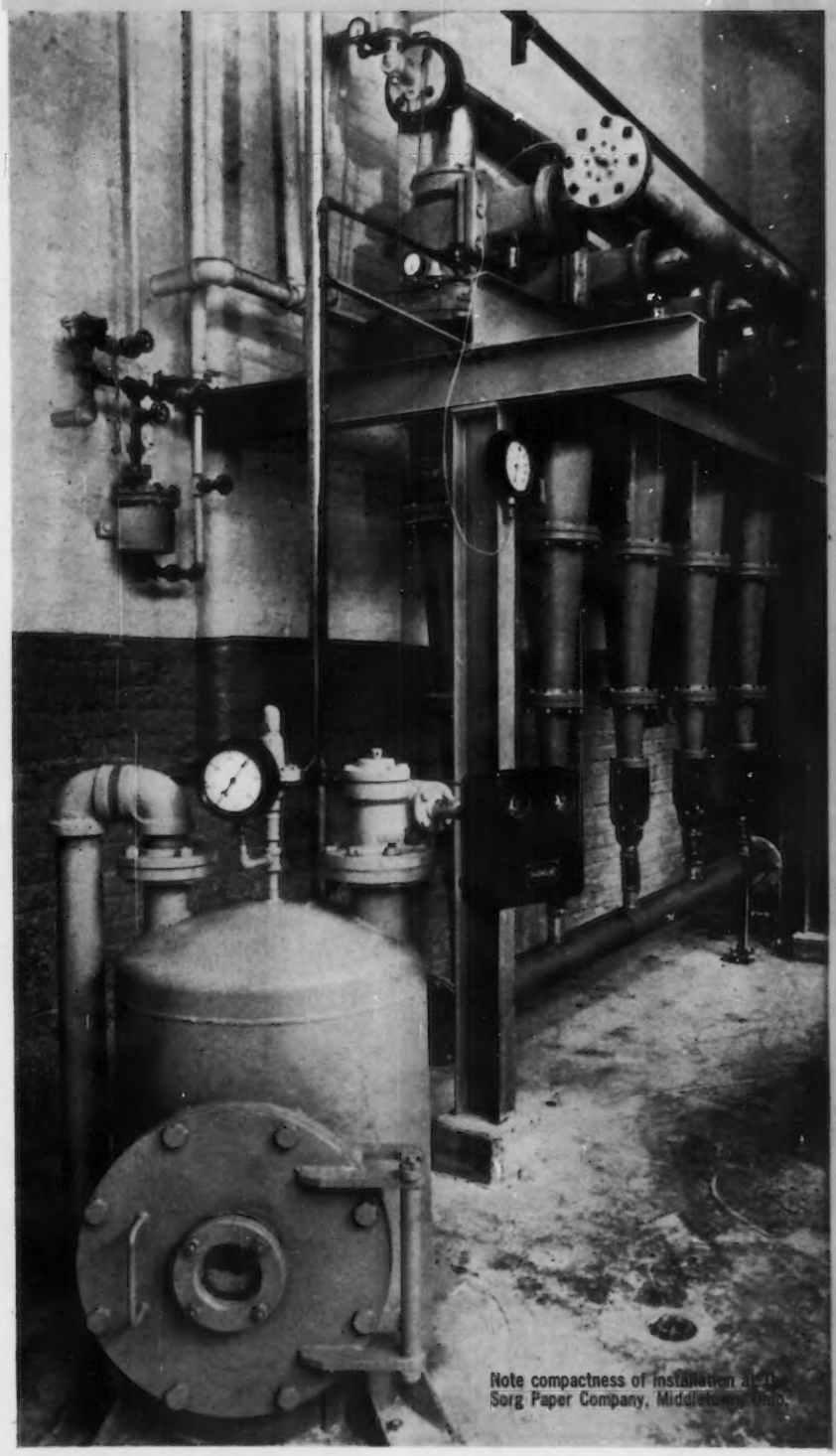
Bauer **Centri-Cleaners with Vacuum Rejects System***



Note compactness of installation at [illegible] Sorg Paper Company, Middletown, Ohio.

***Eliminate air problems and provide cleaner stock at same time...***

From over 100 mills using Bauer Centri-Cleaners equipped with the vacuum rejects system come reports like these:

Cleaner paper . . . improves formation on the wire, since air is kept from entering the cleaners and stock going to headbox . . . compact, neat installation . . . non-plugging . . . requires little if any maintenance . . . less wear . . . less downtime . . . eliminates need for eductors and their high pressure water system . . . reduces need for foam killers...improves quality.

If you want the best value in cleaners, get the details on this Bauer "package."

*U.S. Patents 2,878,934; 2,377,524; and 2,809,567. In Canada, 429,584; 565,199.

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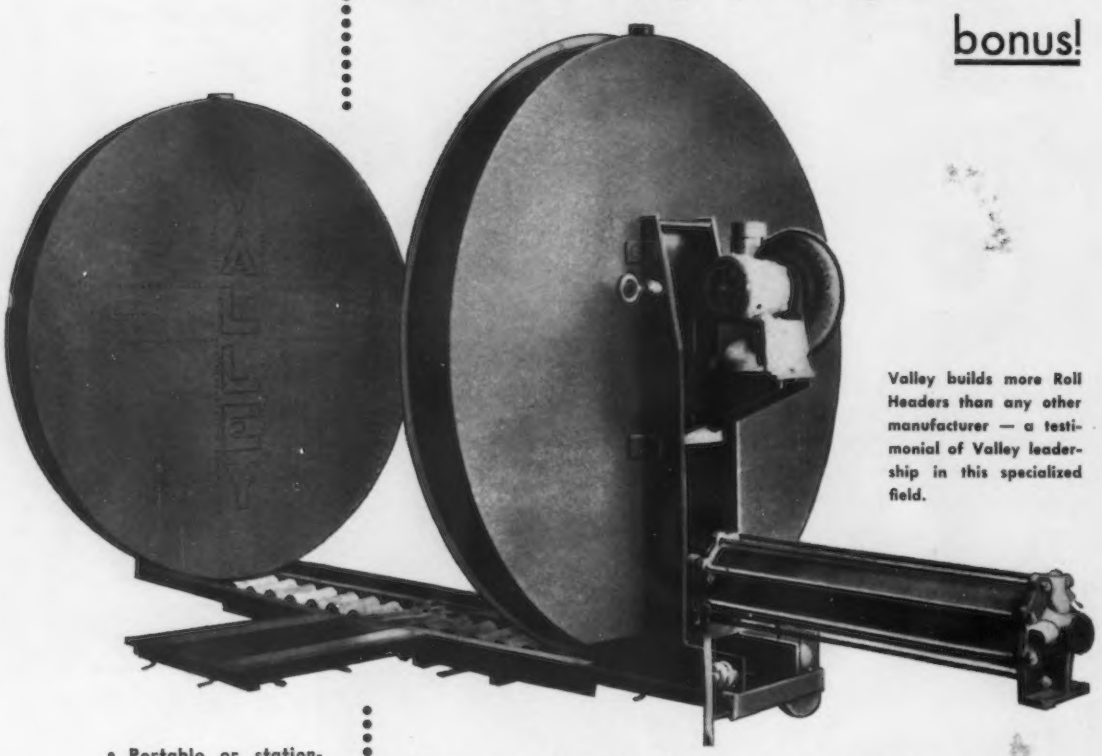
# VALLEY ROLL HEADERS

## cut costs . . . and give you a better-looking "package" as a bonus!



Valley builds more Roll Headers than any other manufacturer — a testimonial of Valley leadership in this specialized field.

- Portable or stationary units.
- Any desired size.
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There was a time when heading rolls by hand was standard procedure. Today it is very costly. It is costly because Valley Roll Headers are effecting savings all the way up to 40% . . . and turning out a much more attractive "package" besides. It's a two-way benefit!

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Over the years we have made intensive study of the territory and have catalogued for ready reference specific data on outstanding locations for the manufacture of pulp and paper as well as for converting plants. Reliable information on choice sites will be furnished interested prospects on request.

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A plant or distribution facility in the Seaboard Southeast will place you in the heart of this rapidly-growing market. Let us submit details on some of the excellent sites strategically situated for supplying the pulp and paper industry.

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**Assistant Vice President**
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**Richmond 13, Virginia**

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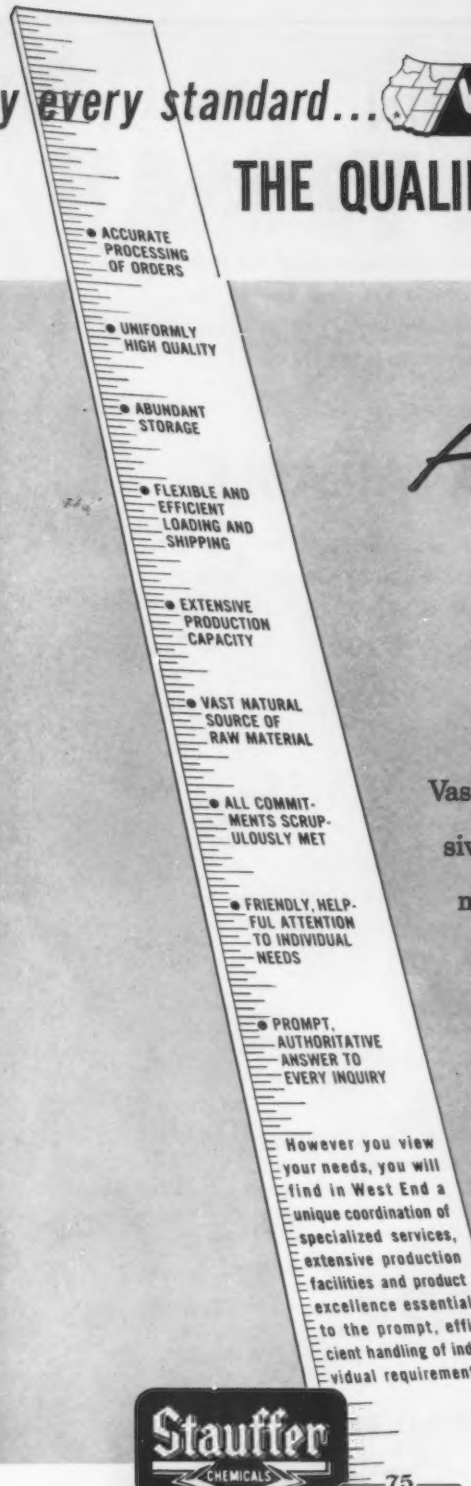
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• ABUNDANT STORAGE
• FLEXIBLE AND EFFICIENT LOADING AND SHIPPING
• EXTENSIVE PRODUCTION CAPACITY
• VAST NATURAL SOURCE OF RAW MATERIAL
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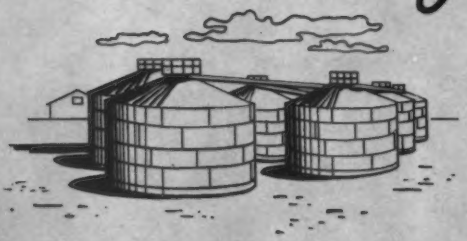
• PROMPT, AUTHORITATIVE ANSWER TO EVERY INQUIRY
However you view your needs, you will find in West End a unique coordination of specialized services, extensive production facilities and product excellence essential to the prompt, efficient handling of individual requirements.

## *Abundant storage*



Vast reserves of finished products stored in extensive tank facilities are immediately available to meet any regular or emergency requirement promptly and easily regardless of market conditions. As West End increases production to serve an ever-expanding market for its products, storage facilities are constantly being enlarged to maintain the abundant level of chemicals in reserve.

Stauffer CHEMICALS SINCE 1885 — 75 YEARS OF SERVICE TO INDUSTRY AND AGRICULTURE

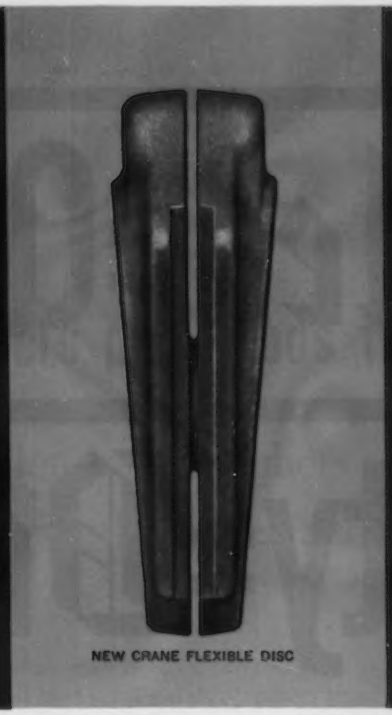
**WEST END CHEMICAL COMPANY • DIVISION OF STAUFFER CHEMICAL COMPANY**

636 CALIFORNIA, SAN FRANCISCO 8, CALIF.

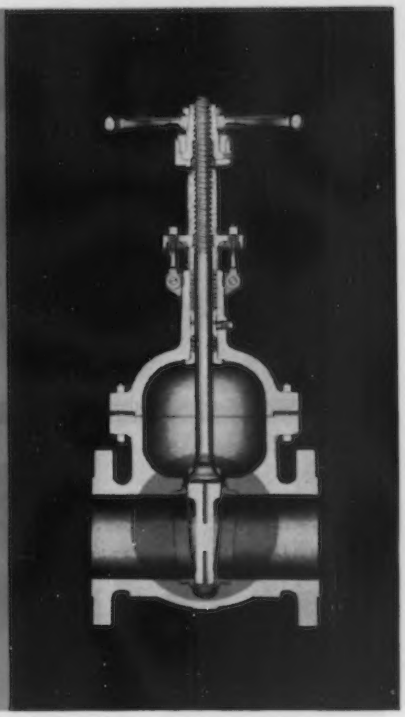
*Reporting more news from...*

**CRANE DIRECTION '70**

. . . a fast-moving program of planned expansion, product development, and streamlined distribution to help our customers meet the challenge of the Soaring Sixties.



NEW CRANE FLEXIBLE DISC



*The most significant advance in gate valve design in 25 years...*

# CRANE FLEX GATES®

Instead of being made with a solid disc, new, patented Crane Flex Gates have separate disc faces, connected by the axle-like unit shown in the cross section. This joins the two seating faces, yet provides flexibility for the faces to seat tightly with independent action.

**BECAUSE THEY'RE FLEXIBLE,** new Crane Flex Gates seat with less torque.

**BECAUSE THEY'RE FLEXIBLE,** new Crane Flex Gates unseat with less torque . . . will not stick closed even when closed while hot and allowed to cool.

**BECAUSE THEY'RE FLEXIBLE,** minor deflection of seating faces due to pipe strains does not affect tightness of Crane Flex Gates.

**BECAUSE THEY'RE FLEXIBLE,** new Crane Flex Gates are tight on inlet seat and outlet seat over a wide range of pressures.

**BECAUSE THEY'RE FLEXIBLE,** new Crane Flex Gates can be used singly in some services where two conventional gate valves are frequently specified. You can save substantially on piping costs.

**BECAUSE THEY'RE FLEXIBLE,** new Crane Flex Gates can be serviced—body seat rings replaced or seating faces refinished—quickly, and without painstaking accuracy. Slightly off-taper seats do not affect tightness or operating ease.

**BECAUSE THEY'RE FLEXIBLE,** new Crane Flex Gates will easily outperform any conventional solid wedge disc valve you now use. *And there's no increase in price.*

**BECAUSE THEY'RE MADE BY CRANE,** these new Flex Gates are completely dependable. You can use them with complete confidence on steam, water, gas, oil or oil vapor service. Stem and disc seating faces are Crane Exelloy. Shoulder-type body seat rings are Exelloy or Crane No. 49 Nickel Alloy. Sizes: 12 inch and smaller; 150- and 300-pound pressure classes.

Ask your Crane Distributor for full information on Flex Gates—and for data whenever you work with the products Crane makes. He has the newest in information and products. Crane Co., Industrial Products Group, 4100 South Kedzie Avenue, Chicago 32, Illinois.

**CRANE®**

VALVES • ELECTRONIC CONTROLS • PIPING • PLUMBING • HEATING • AIR CONDITIONING

# Dryden=Quality

# Quality=Dryden

Our customers tell us:

**"Dryden is the new standard by which all pulps are compared."**

At trade conventions, when the subject of "Quality" comes up, paper men always *start* with talk of Dryden.

As one customer recently told us, "Dryden is the new standard by which we compare all other pulps. When a new pulp comes along, our research people compare it with Dryden."

Our friend was referring to Dryden Bleached Sulphate Pulp, but the same can be said for Dryden's unbleached, electrical, and other specialty pulps.

Whether you want strength, or brightness, or cleanliness, or purity, Dryden pulps are unsurpassed.

Have you checked the "QUALITY=DRYDEN" equation in your own laboratories?

**DRYDEN PAPER COMPANY, LIMITED**
DRYDEN, ONTARIO, CANADA

SOLD BY: **Anglo Paper Products, Ltd.**
2055 Peel Street, Montreal 2, Quebec

SALES REPRESENTATIVE IN THE UNITED STATES:
**Northeastern Paper Sales, Inc.**
400 Madison Avenue, New York 17, N.Y.

# Why readers prefer ads that are specific

## Open letter to suppliers who serve the paper and pulp industry

When a businessman needs a two-ton truck it doesn't help him much to read an ad that simply claims "power plus" or "long term economy." Sure, he wants power and he wants economy, but he wants this spelled out in detail. What horsepower? What gear ratio? How many miles per gallon under load? He wants to know these and dozens of other specific facts *before* he calls on a dealer.

The ad that gets him to take action is the ad that tells him specifics, not generalities.

This principle is just as true when men are considering the purchase of a product like yours. Prospects in the paper and pulp market want *specific* information to help them see how your product fits a particular need.

Specific information is not only more useful to the prospective buyer — it is also more convincing than generalities.

Are the ads your company is running as specific as they could be? Why not look and see, right now, while you're reading this issue? (And as hundreds of mill men are also reading it.)

George E. Lockwood PUBLISHER

PAPER TRADE JOURNAL

## Walt Parker,
## who can duplicate and study virtually every pulping problem in a specially equipped laboratory, says
## you'll like doing business with Columbia-Southern

In the Pulp Laboratory at Columbia-Southern's Barberton, Ohio, Research Center, Walt Parker and his colleagues set up the full range of chemical situations encountered in commercial pulp mills. Thus they can study at first hand any particular questions important to mills using Columbia-Southern chemicals. Evaluation of customer formulations and methods have led to major savings and boosts in efficiency for a large number of pulp and paper producers.

When analyzing customer problems, the Pulp Laboratory engineers work closely with customer technical personnel, carefully checking every step along the way. This relationship insures *practical* results when the findings of the laboratory are put into operation in the customer's mill.

Concern that customers are getting the most efficient use of Columbia-Southern products is a principle followed throughout all departments. It is very evident in the regular activity of the Technical Service Engineers, for example, who provide consultation on unloading, storing, and handling potentially dangerous chemicals such as chlorine and caustic —to mention just one area of Technical Service responsibility.

Customer-oriented concern all along the line explains why so many leading organizations, representing all manufacturing industries, rely on Columbia-Southern for their basic chemical needs.

Anhydrous Ammonia, Barium Chemicals, Benzene Hexachloride, Calcium Chloride, Calcium Hypochlorite (Pittchlor®, Pittabs®), Carbon Tetrachloride, Caustic Potash, Caustic Soda, Chlorine, Chlorinated Benzenes, Chloro IPC, Chrome Chemicals, Hydrogen Peroxide, Muriatic Acid, Pacific Crystals, Perchlorethylene, Rubber Pigments (Calcene®, Hi-Sil®, Silene®), Soda Ash, Sodium Bicarbonate, Sodium Sulfate, Titanium Tetrachloride, Trichlorethylene

columbia | southern chemicals

COLUMBIA-SOUTHERN CHEMICAL CORPORATION • A Subsidiary of Pittsburgh Plate Glass Company • One Gateway Center, Pittsburgh 22, Pa.

# NEW OUTLETS FOR YOU...
# THE COMMON EUROPEAN MARKET
# GROUPING 165,000,000 CONSUMERS

Suppliers to the paper industries, advertise your products to the paper manufacturers of the Common Market by using the advertising pages of "LA PAPETERIE" the most important and the oldest French Language Technical Magazine (82nd year), widely read throughout Europe.

***Ask for a specimen copy and the rates— or instruct your advertising agent to obtain them from:***

**"LA PAPETERIE"**
9 Rue Lagrange
Paris
5e
France

AND NOW THERE ARE FOUR

Balanced Paper-Grade Pulps . . . Created by Papermakers for Papermakers

## ALBACEL • ASTRACEL • MIRACEL • HYDRACEL

Throughout the free world, papermakers use and like Riegel Pulps . . . paper-grade pulps that provide the right balance of all important qualities . . . brightness, cleanliness, strength, formability and proper beating characteristics. To increase the versatility and economy of our pulps, we have developed two new grades, Miracel and Hydracel. These retain all the fine characteristics of Albacel and Astracel . . . and in addition, have been prehydrated to facilitate blending with other fibers.

**RIEGEL PAPER CORPORATION**

260 MADISON AVENUE, NEW YORK 16, N. Y.

# Gain **speed** without loss of quality with **Yankee Dryer Rolls**

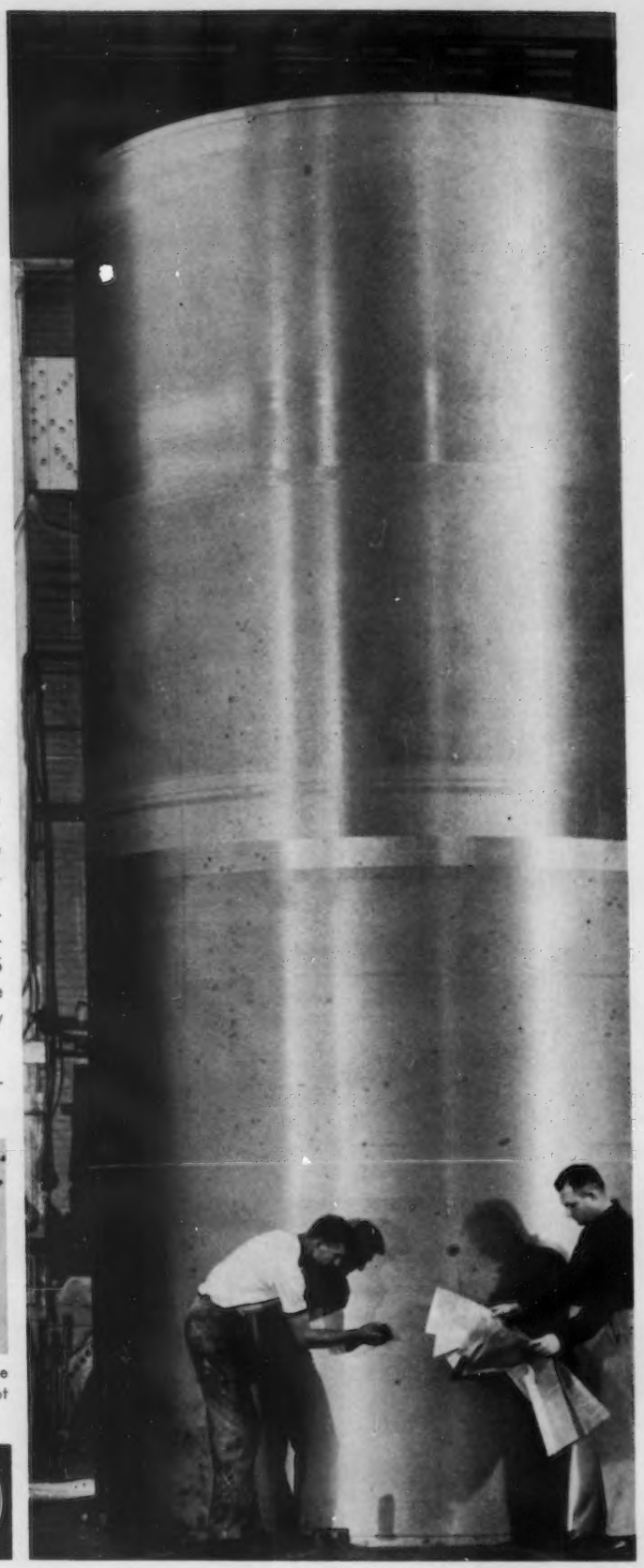
Newport News manufactures Yankee Dryer Rolls to meet every requirement of high speed papermaking production.

Every step in the manufacturing process undergoes the most painstaking quality control to assure delivery of steam-tight dryer rolls. Newport News can produce rolls up to 16 feet in diameter, up to 320" in length. Castings weighing up to 100,000 lbs. are machined to close tolerances and polished to any specified finish.

Capitalize on Newport News' tremendous productive capacity. In foundries, forge shops, machine shops and other facilities covering 225 acres, hundreds of skilled craftsmen complete orders with specialized techniques backed by 75 years of metal fabricating experience.

If you are considering new papermaking equipment, we welcome your inquiry.

**REFLECTION OF QUALITY**—The reflected image of the operator indicates the mirror-like finish of this 16-foot diameter drying roll.



**Newport News**
SHIPBUILDING AND DRY DOCK CO.
NEWPORT NEWS, VIRGINIA

S. P. CHRISTENSEN

# Beloit Eastern's "Pat" Patterson

Here is where design for outstanding finished product processing equipment begins—under the capable direction of H. R. ("Pat") Patterson, Beloit Eastern Corporation's Chief Engineer. For ten years he has been closely associated with the design and development of Beloit equipment. Modern, functional, dependable designs are the prime concern of "Pat" and his staff of experts—drawings for translation into fine equipment by Beloit Eastern Corporation's skilled craftsmen. These men make sure that your designs are developed with close attention to detail.

**FINISHED PRODUCT PROCESSING EQUIPMENT**

Winders • Petite Winders • Slitters
Supercalenders • Roll Wrappers
Roll Lowering Tables • Roll and Shaft
Handling Equipment • Conveyors
Unwind Stands and Tru-Tension
Controls • and other equipment for
the paper and allied industries.

BELOIT EASTERN PAPER MACHINERY DOWNINGTOWN, PENN

Member Beloit Group

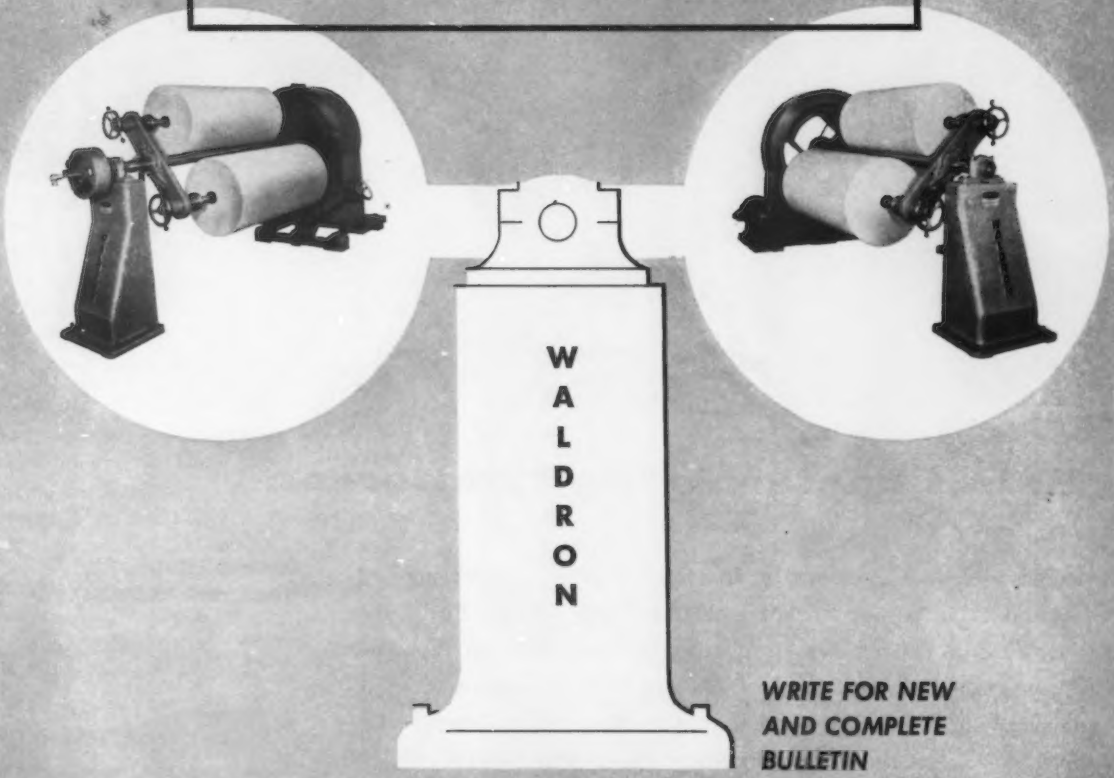
**BELOIT EASTERN CORPORATION**

DOWNINGTOWN, PENNSYLVANIA

# WALDRON 'TURNAREEL' Series

## a new and advanced line of continuous

## UNWINDS and WINDS




WRITE FOR NEW AND COMPLETE BULLETIN

LEADER IN WEB PROCESS ENGINEERING SINCE 1827

**WALDRON-HARTIG DIVISION**

MIDLAND-ROSS CORPORATION

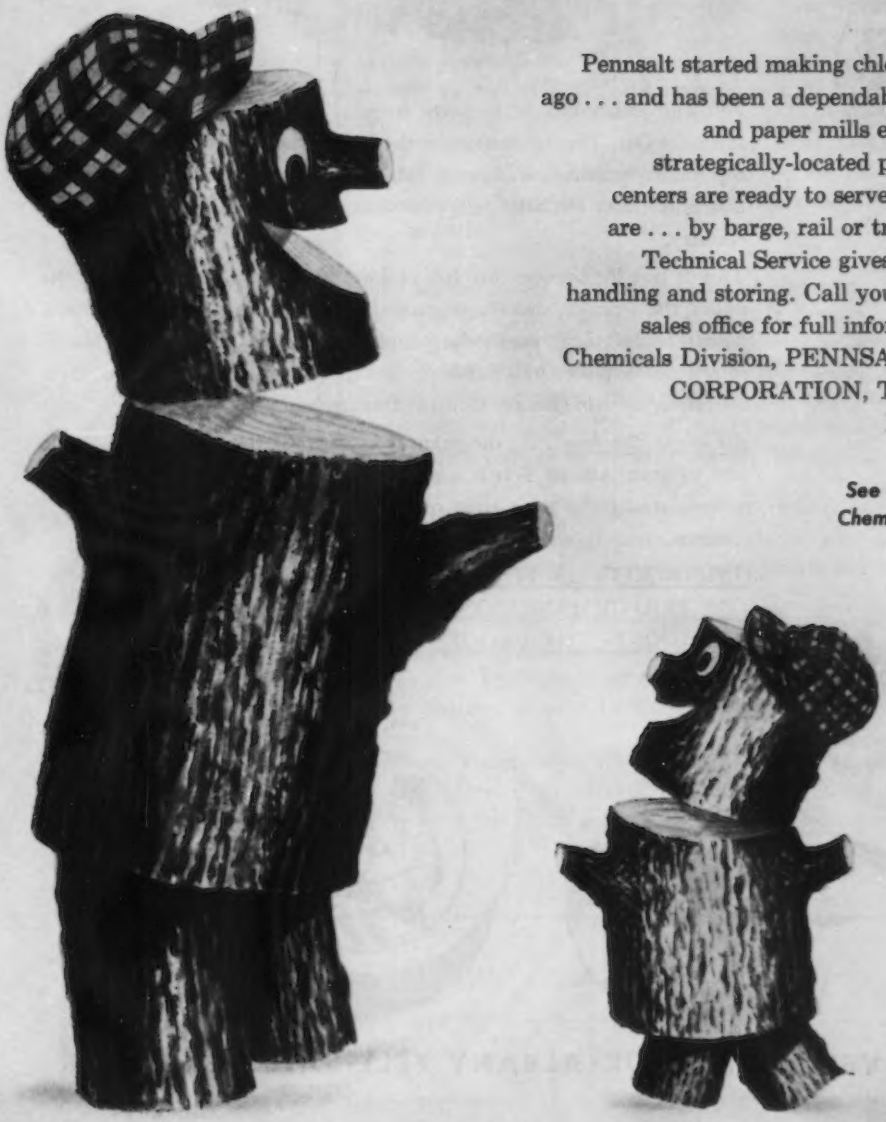
NEW BRUNSWICK, NEW JERSEY

MT. PROSPECT, ILL. • LOS ANGELES

WEST COAST REPRESENTATIVE: BOJANOWER MACHINERY SERVICE CO.
5270 EAST WASHINGTON BOULEVARD, LOS ANGELES 22, CALIFORNIA

WM-260

# ...and for CHLORINE see PENNSALT



Pennsalt started making chlorine over 50 years ago . . . and has been a dependable supplier to pulp and paper mills ever since. Modern, strategically-located plants and shipping centers are ready to serve you wherever you are . . . by barge, rail or truck. And Pennsalt Technical Service gives you expert aid on handling and storing. Call your nearest Pennsalt sales office for full information. Industrial Chemicals Division, PENNSALT CHEMICALS CORPORATION, Three Penn Center, Philadelphia 2, Pa.

*See our complete listing in Chemical Materials Catalog*

**Industrial Chemicals Division**

SALES OFFICES: CHICAGO • DETROIT • NEW YORK • PHILADELPHIA
PITTSBURGH • ST. LOUIS • APPLETON • ATLANTA

PENNSALT OF WASHINGTON DIVISION, TACOMA • PORTLAND
INDUSTRIAL QUÍMICA PENNSALT, MEXICO CITY

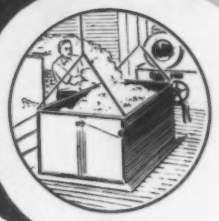
**Pennsalt Chemicals**
ESTABLISHED 1850

PENNSALT CHLORINE is made at Calvert City, Ky., Portland, Ore., Tacoma, Wash., Wyandotte, Mich., and Mexico City

NEW *Felt Facts*

# UNIFORMITY IN YOUR FELTS depends on QUALITY CONTROL

## ALL ALONG THE LINE...



BLENDING

Felt uniformity means the same length, width, drainage and finish—felt after felt. This uniformity is the key to your successful high speed, top quality production. Albany Felt is proud of its record of providing this uniformity felt after felt, year after year, for mills throughout the country.

This is not by chance—for felt making at Albany Felt is carried on under the strictest quality controls in the industry. With *120 check points,* including those in the blending of wool and synthetic fibers, spinning, weaving and finishing, a vigilant watch is kept on each operation by our Quality Control Department.

*All along the line* . . . the manufacture of your Albany Felt is a custom process, under the most rigid quality controls.

UNIFORMITY IS THE RESULT. TOP PERFORMANCE ON YOUR MACHINE IS THE PROOF.

SPINNING

WEAVING

FINAL INSPECTION

LABORATORY

FULLING

**TALK IT OVER WITH YOUR ALBANY FELT SALES ENGINEER**

**ALBANY FELT COMPANY**

ALBANY, N. Y.

*The World's Largest Manufacturer of Paper Machine Felts*

# Trends

**Paper 97% and Board 92% in June**

During June paper mills ran at 97%+ of capacity and board mills at 92%+ of capacity. The lower board figure is partially attributable to the low operating rate (85%) for the week ending June 4.

**Wrapping and Fine Show May Gains**

May merchant sales of wrapping paper were 4.1% above April according to NPTA. The normal increase of May over April is 1.7%. For the first five months wrapping sales were 1.8% ahead of same period last year. Merchant sales of fine papers in May were at the second highest volume month in history and were 2.7% over April, contrary to a normal decrease of 2.3% between these two months.

**News of Expansion Continues**

This issue carries a number of news stories on expansion: St. Marys Kraft, a new large machine for kraft papers; Gilman, speed up of No. 2 paper machine; MacMillan Bloedel & Powell River Co. a new large newsprint machine for Port Alberni, B. C.; confirmation that Bowaters is engineering a new paper mill for its Catawba, S. C., pulp mill site; an $8.5 million expansion by St. Regis Paper Co. for coated papers at its Bucksport, Me., mill.

**How Big In Forty Years**

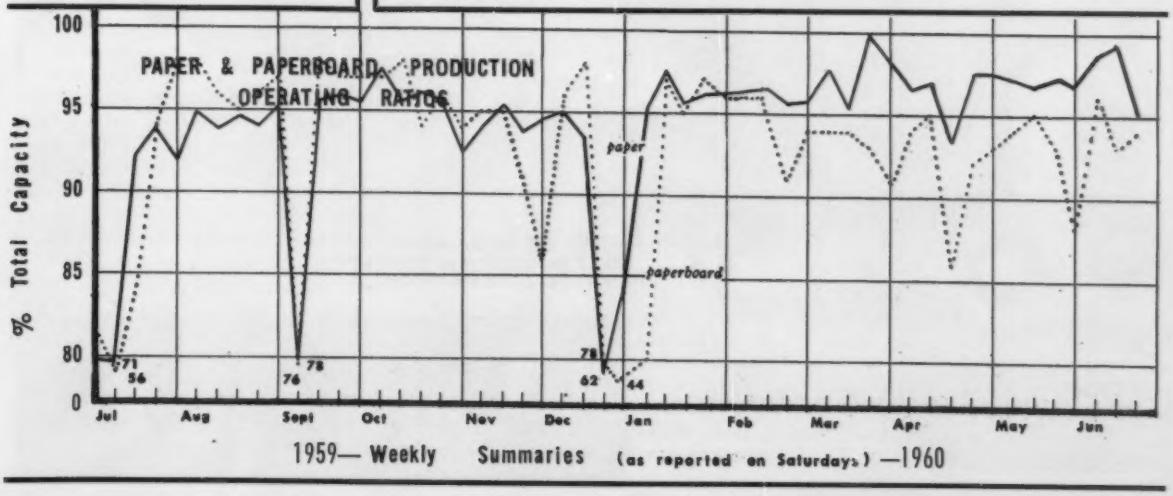
Paper and board requirements of this country in the year 2000 are considered in a feature article beginning on page 50. Estimates by three different authorities are presented and discussed.

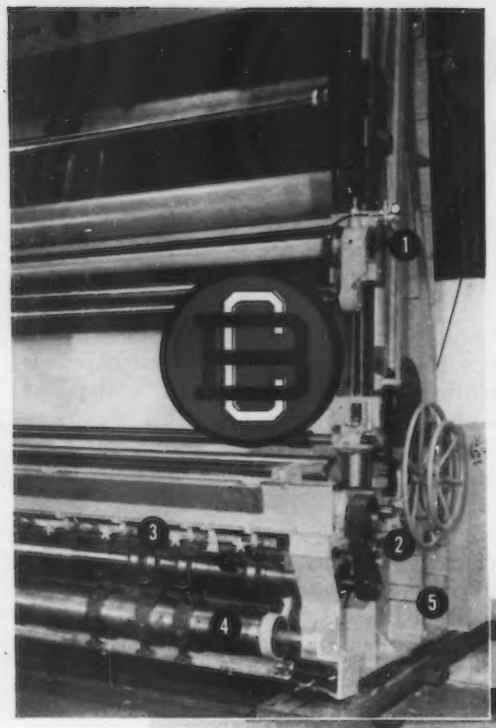
**Finnish Expansion Detailed and Discussed**

Major expansion of the Finnish pulp and paper industry has caused some puzzlement, particularly among those concerned with markets and sales. The nature of this program and its purposes are described in a feature article in this issue.

**Late News Flash G.P. Starts New P M**

Georgia Pacific has just started up its second paper machine at Toledo, Ore. This 175-inch wire Black-Clawson fourdrinier will add 200 T/D of kraft papers to the mill's output.





# TD 12

*the modern standard for slitter-winders*

1. Air-operated automatic riding roll pressure relief eliminates use of loose counterweights and oil hydraulic systems
2. Tooth belt main drive and rear shear drive . . . no lubrication . . . minimum maintenance
3. Readily adjustable bow spreader bar complete with variable pressure points
4. Pneumatic operated double shaft front shear support . . . all front shears engaged and disengaged from operator's control station
5. Heavy framing for vibration dampening and rigidity

Standard, readily available commercial parts

Write for Bulletin 23-DM for specifications of a full range of types and sizes.

**THE BLACK-CLAWSON COMPANY**
**Dilts Division, Fulton, N. Y.**

**TD-12 in operation at Newton Falls Paper Mill, Newton Falls, N. Y.**

*Convert with Confidence*

**BLACK-CLAWSON**

PAPER TRADE JOURNAL

WEEK OF JULY 11, 1960

**Above:** Southern mill and converting plants at St. Marys, Ga., indicating new multiwall and grocery bag plant. **Left:** Northern mill and converting plants at Gilman, Vt.

## Expanding Gilman and St. Marys Mills

Gilman Paper Co. announces a multimillion dollar capital expenditure program involving the following mill additions at St. Marys Kraft Corp., St. Marys, Ga. A third machine will be added, a 236-inch width Beloit paper machine, for the manufacture of light, medium, and heavy weight unbleached kraft papers. This machine will be designed to permit the manufacture of liner board and bleached food board at some future date, and will be dynamically balanced for speeds in excess of 2,000 feet per minute.

This expansion at St. Marys, Ga., will enable Gilman to transfer to the South some of the kraft specialty grades now being made at the Gilman, Vt., mill, and will permit the replacement of these grades at Gilman with higher grade specialties in the bleached and unbleached paper field.

The project at St. Marys, Ga., involves a building approximately 600 feet long, which will house the abovementioned paper machine, complete refining equipment, chemical additive plant, and a new roll grinding shop. Provision is being made for another paper machine in this building at a later date. Steam, electricity, pulp and other facilities necessary for the machine are already in existence at St. Marys.

At the Gilman Paper Co., Gilman, Vt., plant, capital expenditure involves the rebuilding of No. 2 paper machine to increase its speed. This rebuild will call for a new Beloit pressure head box, additional conventional dryers, as well as high temperature dryers, new tub sizing equipment, a new suction press section, and special paper creping devices.

The rebuilding of No. 2 paper machine will be backed up by a new, completely modern, push-button stock preparation system for both No. 1 and No. 2 machines, and will include a Sven-Pedersen saveall, two Hi-Lo pulpers, a broke pulper, with new hydrating, refining and blending equipment.

### Mac Sim Bar Plants Sold to Waldorf Co.

Negotiations have been completed for the sale by United Biscuit Co. of its Mac Sim Bar paper mill at Otsego and two folding box plants to Waldorf Paper Products Co.

The sale, completing more than a month of negotiations, was revealed early in July.

### Mac. B and Powell River Adding a Machine at Alberni

MacMillan Bloedel & Powell River, Ltd., has announced it will spend $24 million to add a newsprint machine with additional groundwood and kraft pulping facilities at its Port Alberni, B. C., plant. Completion is scheduled for 1963.

J. V. Clyne, chairman and chief executive officer, said the company's existing capacity is sufficient to meet normal market demand until 1964-65. The machine is being added to anticipate any increased demand.

The machine will be the company's 12th, bringing annual capacity to 900,000 tons, the third largest in Canada. Following the machine's installation, Port Alberni will have a potential output of about 380,000 tons a year to add to the 510,000-ton capacity of the nine paper machines at the Powell River mill.

Mr. Clyne said additional capital commitments for 1960 exceed $22 million, including requirements to complete the flakeboard and fine paper mills under construction at the start of the year.

### Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending June 25, 1960, at 95.1 per cent compared with 100.1 per cent revised, for the preceding week. The ratio was 96.0 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending June 25, 1960, at 94 per cent, compared with 93 per cent for the preceding week and 98 per cent for the corresponding week a year ago.

*(Detailed statistics on page 64)*

TWENTY-FIVE PAPERMAKERS from all over the United States and Canada are participating in a three-week course on the "Principles and Practice of Coated Paper Manufacture" which began June 19 at Western Michigan University. Front row—ieft to right—R. A. Johnson (Central Soya), Per R. Berg-Johannessen (Dryden), M. E. Boone (N.Y. & Penn), C. E. Winchell (Moore & Munger), S. B. Smith (Minerals & Chemicals), J. R. Piehler (Clinton Corn), H. W. Short (Alliance) and M. F. McGrath (Huber). Second row—J. W. Maxwell and J. Kila (Demopolis), W. A. Matson (Dryden), G. L. Bezalla (Marathon, Rothschild), H. M. Vosmer (National Cash R.), Prof. J. Fanselow. Third row—S. C. Zink (B-C) and G. C. Graham (Glidden). Fourth row—H. S. Hurwitz (A. B. Dick), R. Morgan (Michigan Carton), Prof. A. H. Nadelman, R. A. Perkins (Columbia River), E. T. Kane (Hubinger). Fifth row—W. J. Shaughnessy, L. P. Sutton (Scott, Mobile), H. Bublitz (Hubinger), Prof. L. Janes. Sixth row—O. O. Faggard (I. P. Moss Point), Prof. R. A. Diehm, Dr. A. von Koeppen and E. W. Leaman (Scott, Chester).

## Installation of Paper Machine Begins at Catawba

Financing has been completed and engineering begun for the installation of a paper machine beside the Bowaters Carolina Corp. pulp mill at Catawba, S. C. This announcement was made by V. J. Sutton, vice president of Bowaters in the South.

The machine will be designed to produce 75,000 tons of printing paper per year, and is expected to come into operation at Catawba in 1962, T. C. Bannister, vice president and general manager of Bowaters Carolina reports.

Until recently Bowaters in Canada and the United States has concentrated on the production of newsprint and pulp. The building of the hardboard mill at Catawba, just brought into operation, was the first step in diversification in North America. The new paper machine now definitely set for Catawba represents the second step.

The new paper mill housing this machine is being designed by Bowaters Engineering and Development, Inc., at Calhoun, Tenn.

## St. Regis Announces Expansion at Bucksport

St. Regis Paper Co. will substantially expand production of coated printing papers at its Bucksport, Me., mill through the installation of a new coater and other equipment. A company announcement states that this program calls for an expenditure of over $8,500,000.

This is a continuation of the long-range program of the company designed to increase production of its printing and publication grades of paper. Work on the Bucksport installations is to commence immediately. In addition to the coater, two new full-width supercalenders, a new winder and breaker stack will be added to the No. 1 paper machine. Plans also call for additions to the existing coating preparation plant, electrical distribution system, and new roll grinding facilities to handle this new equipment.

St. Regis is currently producing coated grades on its Bucksport No. 2 paper machine.

## Riegel Paper To Acquire Lassiter

An agreement proposing the merger of the Lassiter Corp. into Riegel Paper Corp. has been signed by the boards of directors of the two companies. Both companies will convene special stockholders' meetings on or about September 28 to vote on the merger proposal.

Lassiter of Charlotte, N. C., is the largest independent converter of packaging films, specializing in the soft goods field. The company also manufactures folding cartons, labels and laminates for many industrial applications.

With the Lassiter merger and a similar proposed merger with Bloomer Bros. Co., announced on June 21, Riegel could be producing a much broader range of packages and packaging materials. Earlier this year Riegel acquired Bartelt Engineering Co., Rockford, Ill., specialty packaging equipment manufacturer.

## Cuba Receives Shipment Of Russian Newsprint

The first shipment of Russian newsprint for Cuban newspapers arrived July 8.

A Soviet vessel delivered 1,000 tons of paper, and similar shipments will be made monthly under the Cuba-Soviet trade agreement. Cuba consumes 3,000 tons of newsprint monthly of which a part comes from its bagasse plant which produces newsprint from the sugarcane residue.

## Canadian Pulp & Paper May Output Up

Canadian paperboard production and shipments were ahead in May and the first five months.

Output for the month was 81,604 tons, up from the year ago figure of 78,025 tons. Included in this year's total were 46,309 tons of container grades, as against 40,705 tons in May 1959, and 35,295 tons of boxboard grades, as compared with 37,320 tons last year.

Domestic consumption in May totalled 74,324 tons as against 72,843 tons last year. Exports were 9,301 tons, up sharply from the 5,361 tons exported in May last year.

In the first five months, paperboard production was 403,188 tons (373,121 tons last year). Exports for the period were 41,421 tons (27,155 tons) and domestic consumption was 354,-466 tons (347,609 tons).

Canadian woodpulp production and

exports continued to gain in May and in the first five months this year.

Output in May was 932,905 tons, up from 924,423 tons last year. Domestic consumption was also ahead during the month at 712,436 tons, as against 700,527 tons in 1959, owing to higher levels of newsprint, paper and paperboard production in the Canadian mills. Pulp exports during the month were 231,143 tons as against 226,100 tons last year.

In the first five months, pulp production was 4,583,053 tons (4,295,021 tons last year), exports were 1,058,910 tons (989,226 tons) and domestic consumption was 3,507,932 tons (3,281,009 tons).

## Canadian Collieries Mill Project Still Active

Establishment of another large pulp mill on Vancouver Island, B. C., is still under consideration.

Canadian Collieries Resources, Ltd., is reported to be negotiating the project with U. S. interests.

Likely site of any pulp mill proposed by Canadian Collieries is at Union Bay on Vancouver Island, where the company has considerable water frontage and dock facilities.

Georgia-Pacific Corp. of Portland, which has an option agreement on some Western Plywood Co., Ltd., stock, was named in local reports as a possible candidate for such a venture.

## Asian Conference on Pulp And Paper Slated

The problems of developing a larger pulp and paper industry in the countries of Asia will be considered later this year at a United Nations conference to be held in Tokyo October 17-31. The conference, which will bring together government representatives, industrialists, research specialists, forest experts and equipment manufacturers, will concentrate on how best to overcome some of the obstacles now impeding the setting up of economically sound paper mills in the region.

The conference will be sponsored by the UN Economic Commission for Asia and the Far East (ECAFE), the UN Bureau of Technical Assistance Operations and the Food and Agriculture Organization. Tokyo was chosen as the site of the conference at the invitation of the Japanese Government.

Pulp and paper consumption in the Far East (excluding Japan, Mainland China and Oceania) is lower than in any major region in the world, the sponsors of the conference point out. The average yearly consumption is about three pounds per inhabitant.

Even with low consumption, the region has always been a net importer of pulp and its products. In 1958, Asian countries are reported to have imported pulp, paper, waste paper and paperboard, costing an estimated $200 million. Moreover, consumption of paper and paperboard is expected approximately to double during the next ten years because of expected population increases and hoped-for literacy improvement, together with an expanded economic growth rate.

## Canadian Mill Men To Meet at Banff

Banff Springs Hotel, Banff, Alberta, will be the scene of the 1960 Summer Meeting of the Technical Section, CPPA, to be held from September 6 to 9.

Theme chosen for this meeting is "Towards the more complete and efficient utilization of our raw materials and manpower resources," making it differ somewhat from meetings of the past. Sessions are being prepared to fit in with this theme and there will not be more than one session held at a time. A visiting delegation from the British Technical Section will be present.

The program has not been finalized, but the following is a list of tentative topics for presentation.

More Efficient Use of our Water Resources.

Better Materials Handling Methods Resulting in Better Use of our Resources.

New High Velocity Hood Installation.

Automation in the Woodroom.

More Efficient Use of Fuel.

Groundwood Stock Evaluation as viewed from its Effect on Paper Machine Operation.

Use of Engineering Models in Design.

Efficient Pressing based on Analysis of 120 Dryer Sections.

Factors Involved in Sizing Fibrous Products.

Bark Utilization.

Radical Drying Techniques for the Industry.

Reason and Function of Chemical Pulp in a Newsprint Furnish.

Installation of the World's Largest Reinforced Plastic Pipe.

Use of Wood Rejects in the Manufacture of Roofing Felt.

Measurement of Fiber Flexibility (by title).

Pulpwood Subdivision without Compression Damage—A New Chipper.

Storage Bin Design for the Flat-type Chip.

**Contributions from the British Delegation Towards Greater Objectivity**

Forced Convection Hood Applied to the Dryer Section.

Use of Manpower in Research.

More Efficient Use of Starch in Papermaking.

**Dinner Speaker:** M. J. Foley, president, Macmillan, Bloedel & Powell River, Ltd.

"Dumb? He thinks the headbox is what the boss carries his lunch in."

# PAPER PEOPLE

Robert Helf

J. S. Pavick

## Helf Joins Hamersley Sales Staff

Robert Helf, for many years associated with the sales department of the Marathon Division of the American Can Co., is now with the Hamersley Mfg. Co., Garfield, N. J.

John S. Pavick joined the Hammersley Manufacturing Co. in 1899 at the age of 12. Mr. Pavick is celebrating his sixty-first year with this one firm.

### Paterson Parchment Names Sales Representatives

Appointment of C. Wilson Wood, Inc., as sales representative for the Paterson Parchment Paper Co. in Delaware, Maryland, Virginia, and the District of Columbia has been announced. Advancement of William F. Kerr as Paterson salesman serving the Greater Philadelphia area was announced at the same time.

### Realignments in Potlatch Technical Dept. Announced

M. G. Kulman, Potlatch Forests, Inc., technical department director, has announced two supervisory realignments in his department.

Robert Linkhart, chief chemist since May 1959, will be in charge of process control, quality control, statistics, inventory control and production services.

Lynn E. Rolig, research chemist for the last four years, will coordinate research and development for the pulp and paper division. This includes pulp, paper, coating and converting plant research and development.

### Hoy Moves to St. Regis Sales Staff

St. Regis Paper Co. announces that Benjamin C. Hoy has been appointed technical pulp sales representative in the Kraft Division. Mr. Hoy has been chief chemist at the North Western Pulp & Power, Ltd., mill at Hinton, Alberta, since its start-up in 1957.

Prior to that time, he was a member of the technical staff at the company's Kraft Center at Tacoma, Wash.

### Scott Promotes Staff Engineers

The Staff Engineering department of Scott Paper Co. has announced the promotions of James D. Stinchcombe and Roy P. Tidman.

Mr. Stinchcombe, currently regional engineer and projects manager, has been promoted to assistant manager of Staff Engineering. In addition, he will give administrative assistance to the manager of Staff Engineering.

A graduate of the University of Michigan, class of 1949, Mr. Stinchcombe also attended a special one year course at The Institute of Paper Chemistry.

Mr. Tidman, currently chief project engineer, has been named projects manager. Joining the company in 1951 as a project engineer, he subsequently held the posts of project engineer in Chester Plant Engineering and later senior project engineer.

A 1947 graduate of Michigan College of Mining and Technology, Mr. Tidman received his degree in mechanical engineering.

### Fiber Center Adds Boger to Staff

George K. Boger, Jr., has joined the staff of Fiber Products Research Center, Inc., Beaver Falls, N. Y., as manager of engineering economics.

Mr. Borger was formerly technical director of Amalgamated Chemical Corp. in Philadelphia, Pa., and previous to that was technical assistant to the vice president of manufacturing, Paper Products Manufacturing Co. in Swarthmore, Pa. He has also worked as a chemist for the Hamilton Paper Co. in Miquon, Pa., and the Empire Smelting and Refining Co. in Philadelphia.

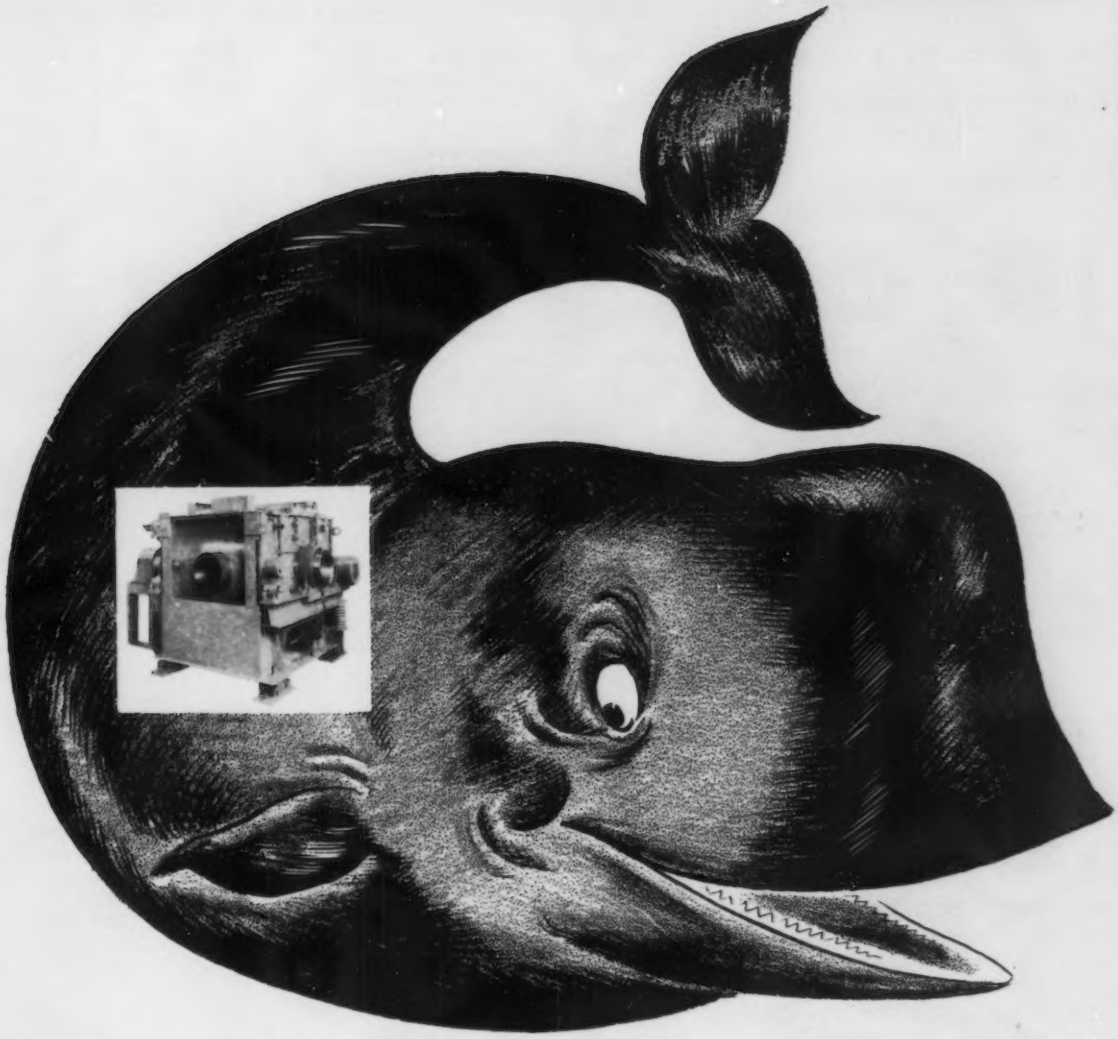
Ben Guenther

### Organizational Changes At Marathon Naheola Mill

John E. Spalding, plant manager, Marathon Southern Corp., Naheola, Ala., has announced organizational and personnel changes at Naheola, resulting from the addition of number three paper machine in the new board mill.

Ben Guenther, who formerly was paper mill superintendent at Marathon Division, Menominee, Mich., plant, will be superintendent of the board mill, and will report to assistant plant manager George J. Brabender.

John Fulkerson, who has served as assistant superintendent in the paper mill for more than a year, will



**Takes little space . . . delivers a whale of a lot of high consistency stock through slotted plates at low screening cost per ton . . . that's the BIRD VIBROTOR SCREEN *for you!***

Occupying less than 150 sq. ft. of floor space, a Vibrotor Screen with .012" slots delivers up to 55 tons of 1.5% unbleached sulphite, 68 tons of bleached sulphite, 80 tons or more of 1.9% bleached sulphate, 100 tons or more of 1.5% unbleached hardwood, 140 tons of 1.9% deink stock.

**BIRD**
**MACHINE COMPANY**

**SOUTH WALPOLE, MASS.**
REGIONAL OFFICES: EVANSTON, ILLINOIS
PORTLAND, OREGON • ATLANTA 9, GEORGIA
Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

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- DOCTORS—BLADES
- HYDRAULIC OSCILLATION
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W. E. Greene Corporation, Woolworth Bldg., New York

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Buffalo Rubber & Supply Inc., 526 Niagara St., Buffalo 1, N. Y.

E. C. Jacobi—H. D. Wake—P. R. Bruce, 746 So. Quincy St., Green Bay, Wisc.

Pulp & Paper Mill Accessories Ltd. Box 903 Montreal, Quebec

E & M Lamort Fils, Vitry-le-Francois (Marne) France

Joseph Winterburn Ltd., Bury, Lancs., England

be assistant superintendent in the board mill.

Replacing Mr. Fulkerson as paper mill assistant superintendent will be William Woods, formerly shift foreman in the paper mill. Two new shift supervisors in the paper mill are Maxwell Gunn, former machine tender on Number two paper machine, and Joe Marino, former machine tender on number one machine.

There will be four board mill shift foremen. They are Dan Rayburn, former tour boss at Potlatch Forests; Loris Crow, former tour boss at Potlatch and Gulf States Paper Co., Demopolis; U. O'Neil, former tour boss at Dierks, Pine Bluff, Ark.; and Neal Ford, former junior process engineer in paper mill and converting at Marathon Southern.

Coating superintendent will be D. Minsloff, former paper mill technician at the Menominee plant. Former production services supervisor—D. Hesselman—will be finishing superintendent. Replacing Mr. Hesselman as production services supervisor will be Robert Stephenson.

The new materials handling and control supervisor will be Robert Enstrom, former machine scheduler at Menominee. Russell Kacmarynski will transfer to the new position of supervisor of engineering planning.

## Tileston & Hollingsworth Elects Officers

Amor Hollingsworth, president of Tileston & Hollingsworth Co., papermakers in Boston, announces the election of the following officers: Eugene H. Clapp, chairman of the board; Paul C. Brown, executive vice president; John A. Ardini, vice president in charge of manufacturing; Raymond G. Mather, assistant vice president and sales manager, and Warren L. Price, assistant vice president.

## Hanson Resigns Post At Oxford Paper

Richard E. Hanson, manager, technical specialties sales, Oxford Paper Co., has resigned effective June 30. At the present time, Mr. Hanson's plans for the future are indefinite.

## Spencer Named to Pulp Mill Post by Menasha

D. Spencer has been appointed administrative superintendent of the Menasha Pulp & Paper Division, Menasha Wooden Ware Corp.

Mr. Spencer has been associated with Menasha Plywood for ten years as purchasing agent, personnel manager, and most recently, as assistant office manager.

He will assist E. C. Manders, general manager, during the construction phase of the new paper mill project by assuming responsibility for the accounting and coordination between the engineers—contractors and the owners.

The construction and engineering of the 125 TPD NSSC paper mill will be done by the Rust Engineering Co. of Birmingham, Ala.

## Eastern Names General Manager—Woodlands

Appointment of Wilfred M. McKay as general manager-woodlands of Eastern Fine Paper and Pulp Division, Standard Packaging Corp., Bangor, Me., has been announced. Mr. McKay succeeds D. B. Demeritt, who has resigned from the Eastern Division so as to devote full time to his responsibilities with the Dead River Co., of which he is vice president and director.

Mr. McKay has been an employee of the Eastern organization since 1944, serving successively as supervisor of trucking operations, woods

*(Continued on page 75)*

*Do It Yourself!*

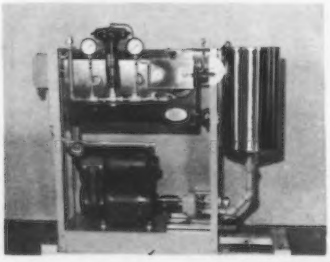
PROCESS YOUR STARCH SLURRIES TO SUIT YOUR INDIVIDUAL NEEDS—

LARGE USERS OF STARCH HAVE FOUND THIS EASY TO OPERATE COOKER A VALUABLE TOOL IN LABORATORY AND MILL.

WILL COOK THE NOW POPULAR HIGH TEMPERATURE STARCHES.

YOUR TECHNICAL MEN HAVE **IDEAS** — THIS IS THE TOOL TO DEVELOP NEW AND BETTER - - -

COOKED STARCHES



**Continuous Starch Cooker**

Thermal Equipment Corporation
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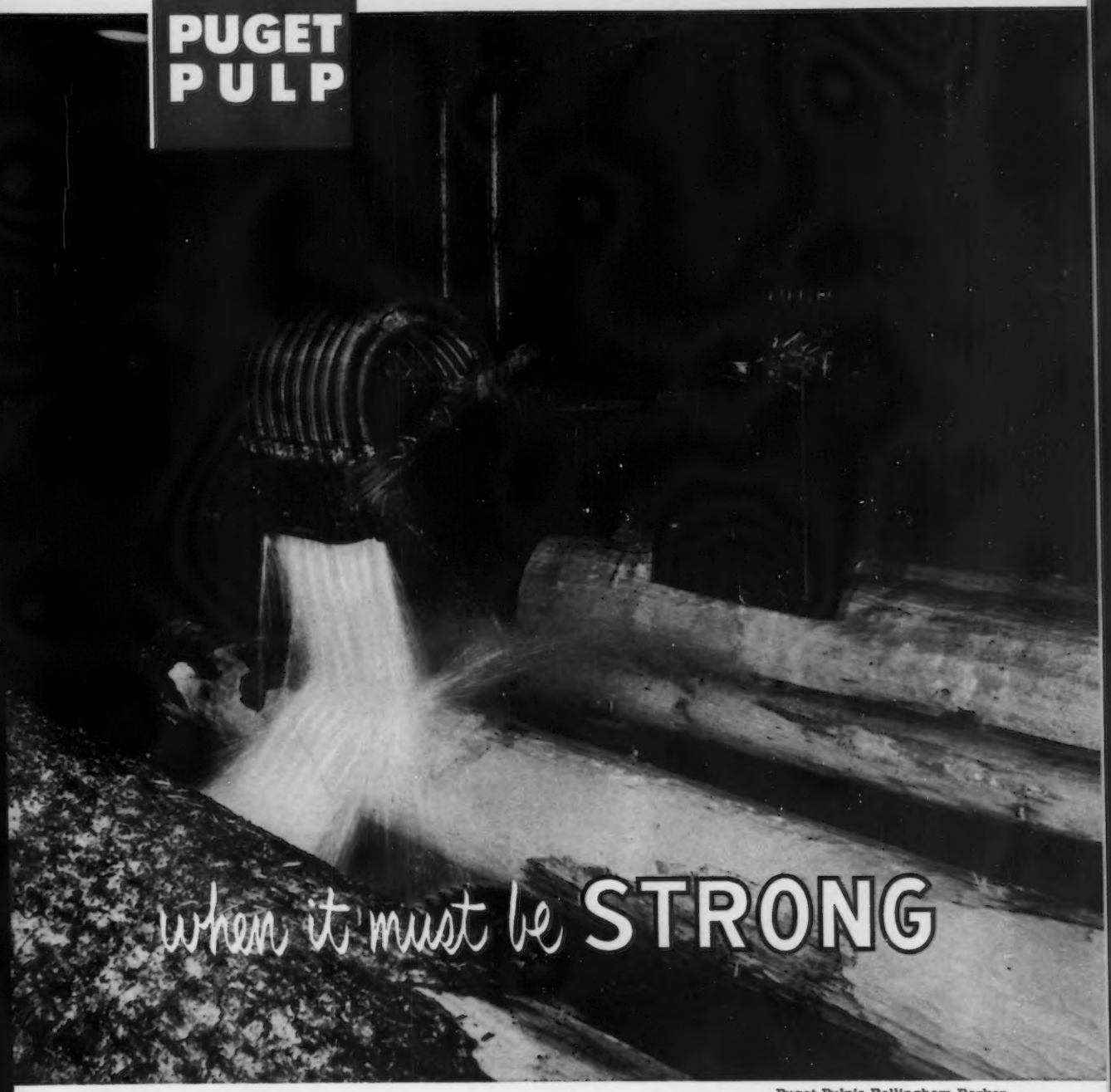
# PUGET PULP




Puget Pulp's Bellingham Barker

start with PUGET PULP...
...the uniformly strong, clean, white
chlorine dioxide bleached
softwood sulphite

**PUGET SOUND PULP & TIMBER CO.**
BELLINGHAM • WASHINGTON

# NEWS OF CONVERTERS

W. H. Morris

J. R. Murphy

## O-I Mill Division Names Vice President

William H. Morris, sales manager of Owens-Illinois Glass Co.'s Multiwall Bag Division, has been named vice president and manager of board sales for the O-I Mill Division. Mr. Morris will direct the sales of all container board for the company.

J. R. Murphy, manager of the Multiwall Bag Division's plastic bag operations, will succeed Mr. Morris as sales manager of the division.

Mr. Morris was vice president of the Chemical Packaging Corp., with headquarters in Savannah, Ga., when he joined O-I in 1958.

Mr. Murphy was purchasing agent for General Mills in Buffalo before joining Owens-Illinois in 1954 as a salesman. He came to Toledo in 1959 as assistant manager of the plastic bag operations and became manager later in the same year.

### Armstrong Cork Elects Hetzel Vice President

Election of Roger H. Hetzel as vice-president and general manager, packaging materials operations, Armstrong Cork Co., has been announced. Mr. Hetzel, formerly assistant general manager and general sales manager, succeeds Joseph C. Feagley who is retiring in June.

Mr. Hetzel joined Armstrong in the controller's department in 1935. He transferred to sales in the former Closure Division in 1936 and served in the New York and Rochester, N. Y., offices. In 1946 he became assistant commodity manager for glass containers in the Glass and Closure Division and two years later was appointed assistant sales manager. He was elevated to general sales manager in 1949 and became assistant general manager and general sales manager of the division in 1957. He retained those positions when the division was renamed the Packaging Materials Division in 1959.

### Lord Baltimore Press Realigns Executives

Realignment of various key executives and assignment of new expanded management duties is announced for The Lord Baltimore Press.

Allen Staley, formerly assistant to the president, was elected vice president, sales. He will have direct responsibility for the line sales activities of Lord Baltimore's Eastern and Midwestern Divisions. Additionally, he will direct related departments including market research, creative design and advertising and will coordinate sales with Lord Baltimore's California operations.

Frank J. Bagamery has been elected vice-president, Industrial relations and personnel. Mr. Bagamery formerly was director of industrial relations and personnel.

Roland F. Boehm was named administrative assistant to the executive vice-president. In this post, he will supervise new product development and will handle special management assignments formerly performed by the executive vice-president. Mr. Boehm previously had served as Lord Baltimore's general sales manager.

### Bemis Bro. Announces Sales Dept. Changes

R. F. Smith, market research manager, general sales department, Bemis Bro. Bag Co., St. Louis, Mo., has been named head of the sales development section. He replaces E. G. Muir who has transferred to Seattle, Wash., as assistant manager of the company's Seattle plant and Pacific Northwest sales division in Vancouver.

Mr. Smith will be succeeded as head of market research by R. P. Welch, an assistant in the market research department.

### Container Corp. Names Graf Division Gen. Mgr.

Paul A. Graf has been named a division general manager of Container Corp. of America, responsible for the company's Chicago and Solon, Ohio, carton operations. In his new assignment, he will headquarter in Chicago and will report to Henry G. Van der Eb, vice president in charge of all folding carton operations.

Previously, Mr. Graf was general manager of the company's Philadelphia folding carton plants. He joined Container Corp. in 1928 after attending the Illinois Institute of Technology.

R. H. Brown

R. Harper Brown succeeds Mr. Graf as general manager of the Philadelphia folding carton plants. He will headquarter at Valley Forge, Pa., where, since 1958, he has been general sales manager of the Valley Forge and Manayunk plants.

Mr. Brown joined Container in the Chicago sales service department in 1947.

# The Beloit Album

**SOUTHERN LAND TIMBER AND PULP** Corporation's exec. vice president, Edward L. Cowan *(second left)*, at a recent Beloit conference, discusses design details with Beloit's C. E. Macklem, E. H. Neese, Jr., E. D. Beachler, and D. R. Schamp.

*(Left)* **INTERNATIONAL PAPER COMPANY'S** Mobile Mill assistant UME, T. S. Bartley *(l)* is seen on the erecting floor with Beloit designer D. E. Leavitt. They are discussing a roll wrapper.

*(Above)* **DUNN PAPER COMPANY'S** president, G. C. Dunn *(r, c)* and mill manager, W. E. Woods *(l, c)*, look over their new Fourdrinier with Beloit's sales manager, F. G. Ramsden *(r)*, and staff engineer M. M. Cobb.

*(Right)* **CONTINENTAL CAN COMPANY'S** C. S. Huestis *(l)* and Beloit division sales manager, C. H. Swartz, get a close-up view of a vat inlet on the main erecting floor.

# Progress report from the Beloit Group

## . . . expanding to serve you better

**BELOIT EASTERN CORPORATION,** Downingtown, Pennsylvania, reveals some dramatic changes since its recent expansion program. Total plant area is now 300,000 sq ft. Building pictured above, at left, houses the expanded foundry and core room. This addition also houses a completely new and modern welding department. Beloit Eastern's foundry now has sufficient productive capacity to meet the needs of its own shops, as well as the casting requirements of E. D. Jones Corporation. Expanded sales and engineering activity further increase Beloit Eastern's effectiveness in the field of finished product processing equipment. Views at Beloit Eastern are seen below. (a) Main erecting area bustles with activity as finished product processing equipment nears completion. Shipping area in foreground will move into new building later this year. (b) Model M Winder nears completion on the main erecting floor. Winder is equipped with Beloit's new improved slitting arrangement. (c) Engineering department where designs for finished product processing equipment begin. Engineering and sales departments share these spacious quarters.

a.

b.

c.

(Below) **BELOIT IRON WORKS, WELDING DIVISION,** is located three miles south of main plant, near Rockton, Illinois. New facilities, embracing the welding and fabricating division in an area of 75,000 sq ft, enable Beloit to offer a new and comprehensive range of fabricating services. This site is ideally located, with direct rail siding, a mile's drive from the Northwest Tollway. View below, with pipe storage in foreground, shows plant shortly after completion. Beloit's expansion plans also include a new 45,000 sq ft Research and Development Center.

**E. D. JONES CORPORATION,** Pittsfield, Massachusetts, occupies this modern plant, built for utmost efficiency in the design and manufacture of precision pulp and stock preparation equipment. Aluminized steel is the basic building material. The plant covers an area of 200,000 square feet and can be expanded easily to 640,000 square feet. It is functionally modern in every respect, both office and production areas featuring the latest in facilities. The production area is lighted by high output fluorescent lamps and is heated by radiant gas unit heaters, each with integral thermostat. Air conditioned, well-lighted offices are designed to give complete working comfort and efficiency. Plant has complete rail and truck shipping-receiving facilities. Switch tracks lead to main line of New York Central.

**ACTIVITY AT JONES** is evident in this long-range view of one of the seven manufacturing bays, each 50 wide by 300 feet long. Extensive line of pulp and stock preparation equipment is produced.

**PAPER TESTING** is part of the job in the new Jones Research and Development Laboratory.

**ENGINEERING AREA,** spacious, well lighted, where newest pulp and stock preparation equipment starts on drafting boards.

**ASSEMBLING BARS** on Jones Adapta-Plug, with Fulbar Shell Fillings in background, familiar to all papermakers.

*your partner in papermaking*

# BELOIT

**PAPER MACHINERY**

BELOIT IRON WORKS · PAPER MACHINERY · BELOIT, WIS. U.S.A.

S. R. CHRISTENSEN

**FOURDRINIER FOR DUNN PAPER COMPANY** as it appeared on main erecting floor at Beloit, Wisconsin. This 132" Fourdrinier was part of a major machine rebuild at the Port Huron, Michigan, mill. The machine is now in full production, producing the famous Dunn specialty papers. Rugged dependability best describes a Beloit-built Fourdrinier—designed to promote natural drainage, permit higher speeds, improve general sheet characteristics, and help reduce machine downtime. Beloit builds Fourdriniers of every type—stationary, cantilever, pit stringing removable, and aisle stringing removable. Whether you need a completely new Fourdrinier or a rebuild—call on Beloit.

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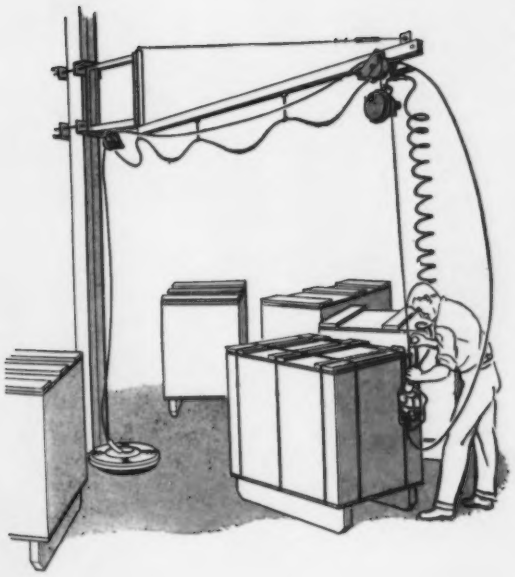
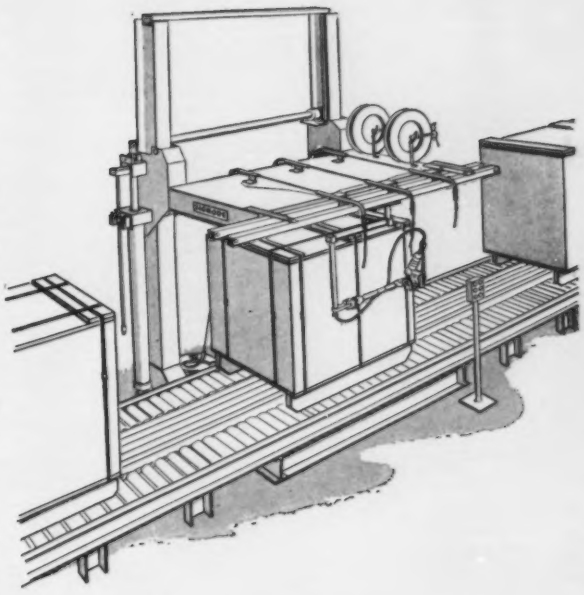
*WHEN YOU BUY BELOIT . . . YOU BUY MORE THAN A MACHINE*

# BELOIT

## PAPER MACHINERY



Centralized packaging with Signode's complete jib crane set-up.



Centralized compression packaging station with Signode CS20-1 press.

# Improve packaging and save money with centralized strapping the Signode way

Many mills, large and small, are already using newly developed Signode methods in combination with one or the other of the two centralized packaging stations shown above to obtain these advantages for themselves and their customers:

- **Packaging material savings**
- **Reduction in paper slippage in transit**
- **Better moisture content control**
- **Fewer customer complaints**
- **Better flow of material through your operation**
- **Receiver can triple-deck his paper**
- **More usable sheets per skid of paper**
- **Paper can be used directly from the skid for high speed offset presses. No restacking.**
- **Less downtime in customer plants**

Signode's specialists in paper packaging are available, at no cost, to help re-arrange product flow, where required. These men are in addition to and work together with our regular field engineering, testing laboratory, and sales representative staffs.

Write for additional information that includes details of the Signode ways that produce better packaging at less cost than older methods.

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*First in steel strapping*

**SIGNODE STEEL STRAPPING CO.**

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Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide
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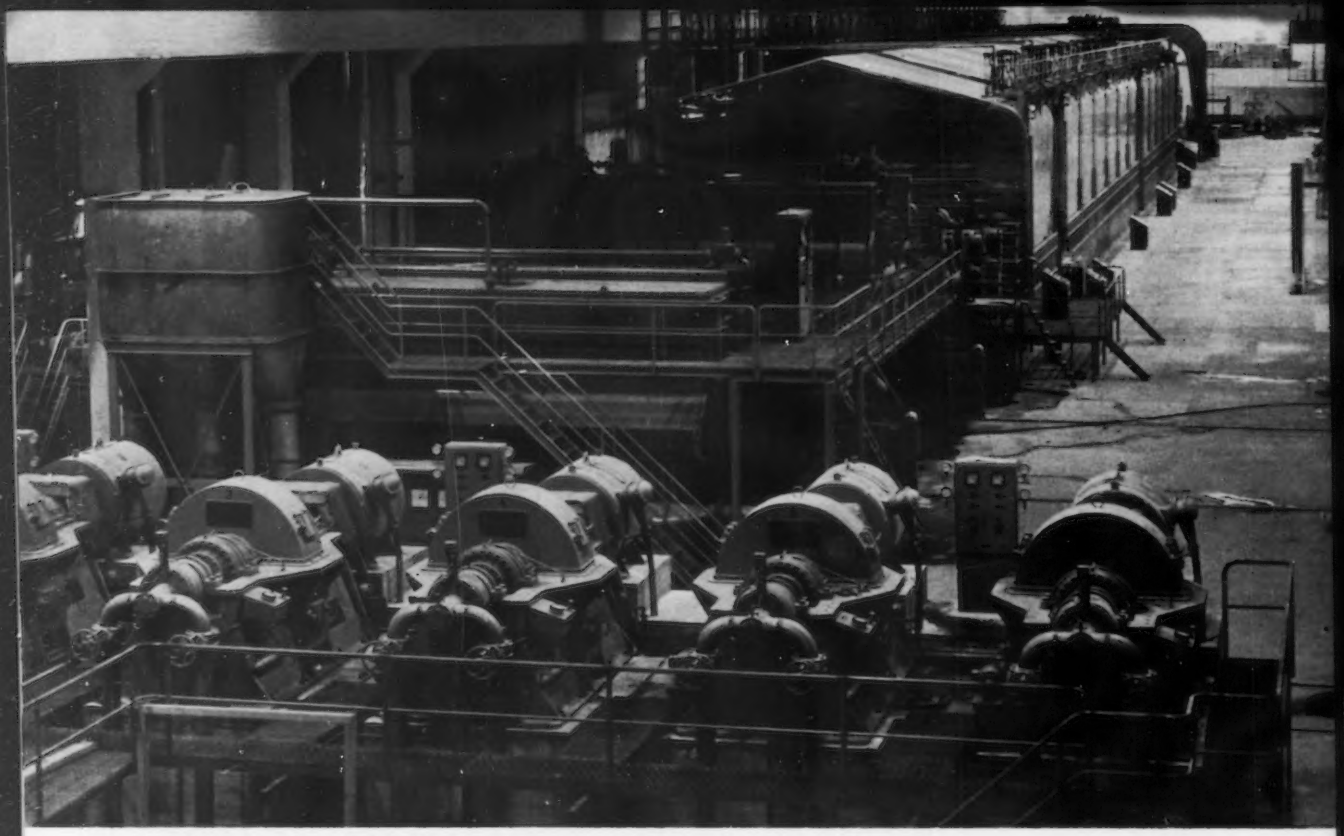


Board machine No. 3 at Kaukopää mills of Enzo-Gutzeit. Kaukopää is now the biggest board mill in Europe with annual production capacity of 320,000 tons. Early next year it will increase to 450,000 tons when the fourth board machine is to be started up.

# Finnish Industry In Midst of Major Expansion

**With an eye on the prospects of a booming Europe as a result of the Common Market, she is expanding and modernizing her mills and including the latest technological developments.**

**John C. W. Evans,**
Editor

The Finnish pulp and paper industry is currently engaged in major expansions of its mills which result in about a 50 per cent increase in paper and board capacity and a 40 per cent increase in market pulp capacity. The bulk of this new production is designed for the rapidly growing markets of Western Europe.

Separate FAO and OEEC surveys indicate that by 1965 Western Europe's paper and board demands will be 50 to 60 per cent greater than in 1955.

These studies showed that the bulk of the increase would be in kraft paper and boards and in newsprint. It is therefore chiefly for these grades that the Finnish industry is expanding.

The present capacity and the increases planned in Finnish pulp and paper mills are estimated as shown in Tables I and II.

## Forests Ample

Finland's raw material resources will suffice for the expansion schemes proposed. This statement is based principally on the results of the Third National Forest Inventory and on the logging plan worked out from them. This new plan strengthens the view

that her raw material resources are sufficient for even greater expansion projects. The plans for increasing production thus rest on a sound basis as far as raw material supply is concerned.

### Financing

Realization of the expansion program as a whole, will cost over 110 thousand million Finnmarks. (One million Finnmarks equals approximately 3200 U. S. dollars). This sum will be raised partly through foreign and domestic loans and partly by the forest industry companies. The 37 million dollar loan (about 12 thousand million Finnmarks) extended by the International Bank for Reconstruction and Development was an important single source of funds for the plan.

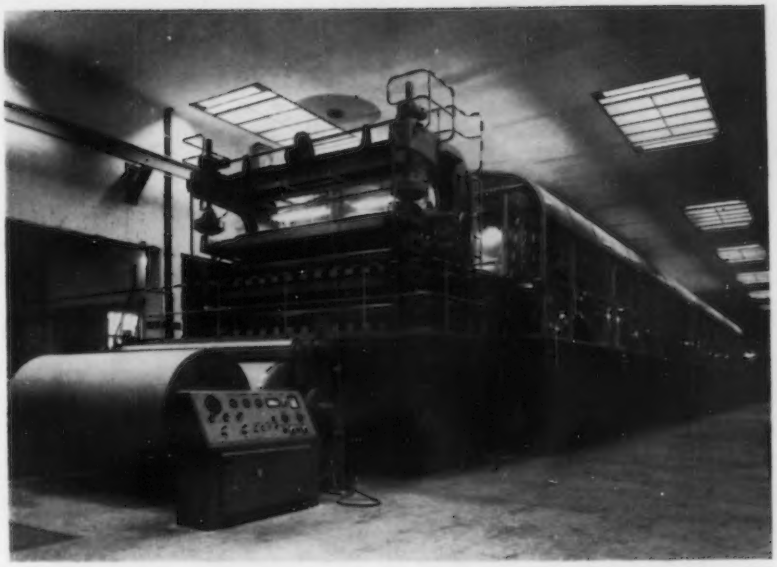
### Mill Size Favorable

The present average size of Finnish pulp and paper mills compares favorably with plants in other countries. Finland holds the third place as regards average size of chemical pulp mills, only a little behind Canada. On kraft pulp mills, Finland comes second after the United States. The comparative position of the size of Finnish paper mills, as indicated in Table III, shows that she comes second after Canada with the United States in third position.

### Technical Improvements

The expansion projects include all the latest technical advances made both at home and abroad. Among these are: stainless steel clad digesters for sulphite mills; use of compressed air to prevent lakes freezing over and permit water storage of pulpwood; submerged hot ponds for debarking logs; sulphite spent liquor evaporation and burning; use of Sulzer blowers for vacuum pumps on paper machines; high temperature electrostatic precipitators; NSSC chemical recovery; and latest wood handling equipment.

Included in the program is the extensive modernization of existing mills as well as their expansion and the building of new mills. Other features of the chemical pulp mill expansion include pyrites burners and by-products chemical recovery, such as alcohol, yeast, tall oil. It was reliably reported that virtually all the



**The new fine paper machine at Kangas mill of G. A. Serlachius By. Various kinds of fine papers are produced on this machine, varying from 45 to 240 grams per square meter at an output of 35 to 55 tons per 24 hours.**

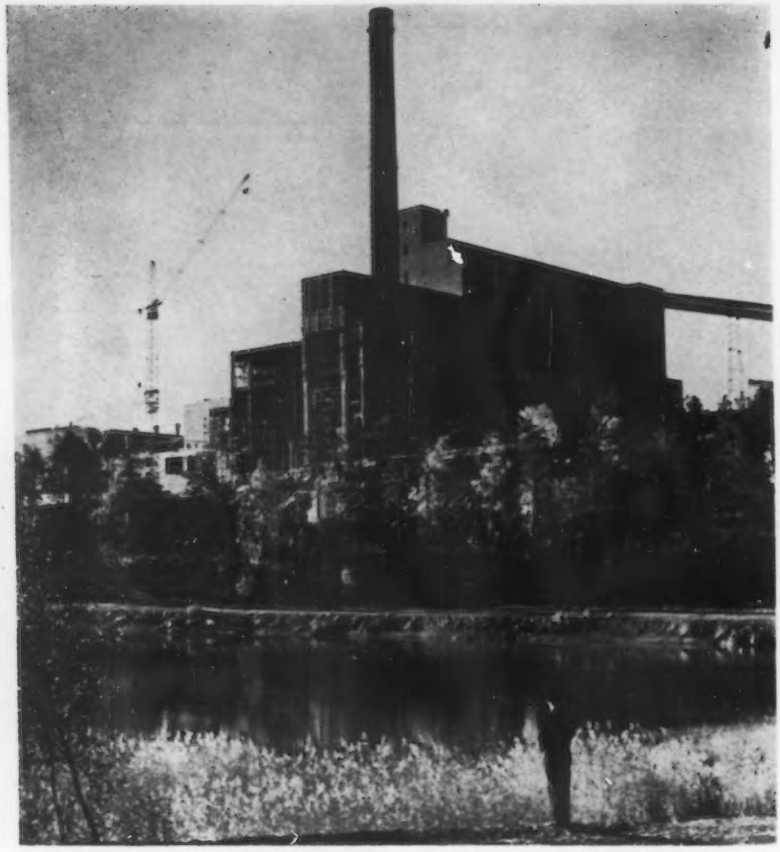
**Modern and effective wood handling at Enso-Gutzeit's Summa newsprint mill. Pulpwood bundles are lifted by overhead crane from the railway cars onto conveyors.**

**TABLE I**
**PULP MILL (TOTAL) CAPACITY**

| | Capacity in 1000 metric tons | | |
|---|---|---|---|
| | 1959 | 1962 | Increase |
| Mechanical pulp | 1200 | 1550 | 350 |
| Sulphite pulp | 1300 | 1570 | 270 |
| Kraft pulp | 1200 | 2150 | 950 |
| Semi-chemical pulp | 30 | 160 | 130 |
| Total | 3730 | 5430 | 1700 |

**TABLE II**
**PAPER AND BOARD MILL CAPACITY**

| | Capacity in 1000 metric tons | | |
|---|---|---|---|
| | 1959 | 1962 | Increase |
| Newsprint | 860 | 1260 | 400 |
| Other paper | 620 | 810 | 190 |
| Paperboard | 500 | 870 | 370 |
| Total paper and board | 1980 | 2940 | 960 |



**Kraft pulp mill of Sunila Osakeyhtio makes at present about 150,000 tons of pulp annually. Expansion will increase this to 240,000 tons. There will be 13 digesters, each 140 cu. m., and 35 washers. Expansion of the mill will be completed by 1961 and the mill will be able to produce simultaneously four different types of pulp.**

new paper machines will be equipped with Sulzer blowers.

## Some Mill Projects

A few of the more interesting projects are outlined below. However virtually every mill in the country is involved in a major expansion project.

**Tampella** — New semi-chemical pulp mill and corrugating medium plant at Heinola. This mill with a capacity of 350 tons per day of NSSC pulp will be the first large installation of this type in Finland. It has been designed for expansion to 500 tons per day. The Sivola process will be used for recovery of cooking chemicals. This is the first Sivola recovery system anywhere on NSSC (See PTJ, September 14, 1959, editor's on-the-spot description). The pulp mill will use Pandia digester and Sprout Waldron refiners made by Tampella.

**Sunila**—Expanding kraft market pulp mill from about 440 to 700 tons per day. The plant will be able to produce four different grades of bleached or semi bleached pulp simultaneously when the project is completed.

**Enso Gutzeit** recently expanded its Kaukopää kraft pulp mill and added another liner board machine. This is now Europe's largest board mill and the second largest (next to Union Bag-Camp at Savannah) kraft mill in the world. Another new liner board machine is due to start up here early next year. As it was not practical to further expand the pulp mill here, a new one is under construction at Harakka three miles away from where it will be pumped to the original Kaukopää mill. Bleaching capacity is being increased and a semi-chemical pulp mill added to produce a wider range of boards, including various bleached grades.

**Kemi Oy** is increasing the capacity of its unbleached kraft market pulp mill to about 700 tons per day. Included in the project is what is believed to be the world's largest recovery unit (Babcock & Wilcox design) to handle the entire output of the kraft mill.

**Veitsiluoto Osakeyhtio** has increased the size of its sulphite market pulp mill by 25 per cent, to 100,000 tons a year and also converted to bleached pulp. It is currently installing the largest newsprint machine ever built in Finland (by Wartsila Koncernen). This first venture into newsprint by this company includes a modern groundwood pulp mill. The paper machine will trim 256 inches and has a present operating speed of 2450 f.p.m. and a designed speed of 2950 f.p.m.

## Markets and Equipment

The current expansion program is directed towards markets in Western Europe and the United States. Finland's biggest customers for pulp are, in decreasing order: Great Britain, France, West Germany and the United States. Principal customers for paper and board are West Germany, Great Britain, United States and U.S.S.R. Russia takes only 20 per cent of Finnish total exports. Finland is the only country in Western Europe which borders on Russia and has maintained its independence. As the USSR's only non-satellite neighbor in Western Europe she was compelled by the peace treaty to make very heavy payments in goods and machinery. This resulted in Finland building up a large heavy machinery industry, including pulp and paper mill equipment. When the "so-called" reparations to Russia were completed (several years ahead of time) she was faced with finding a market elsewhere for this machinery. Expansion at home has consumed some of the output. The remainder has been sold to countries throughout the world. For example, two complete pulp and paper mills are currently being supplied to South America. Since the war Finnish manufacturers have built 70 paper machines.

**TABLE III—COMPARISON OF AVERAGE PAPER MILL SIZE**

| | Number of mills | Average production per mill unit (tons per annum) |
|---|---|---|
| Canada | 94 | 71,600 |
| Finland | 40 | 38,800 |
| United States | 795 | 35,000 |
| Sweden | 52 | 32,000 |

# How Scott Pioneered in the Barking and Pulping of Red Alder

**To improve the use of red alder, Coos Bay Pulp Co. hit on the advantages of a barker previously known only in sawmills. The author reports how this mill handles alder in the production of high grade sulphite pulp.**

**Ernest F. Barker,**
European Editor*,
Paper Trade Journal

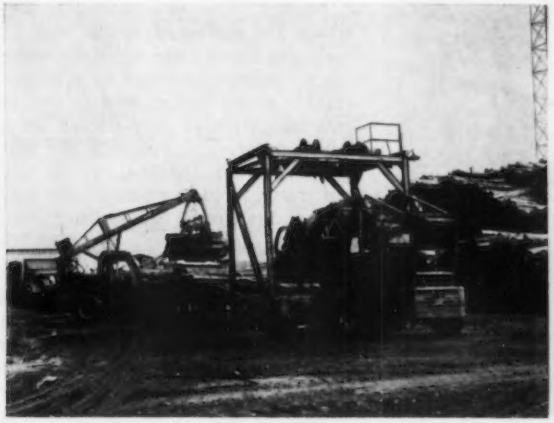
The Anacortes, Wash., mill of Coos Bay Pulp Corp, a wholly owned subsidiary of Scott Paper Co., is known as the mill on the West Coast which pioneered the use of hardwoods for the production of ammonia base sulphite pulp. Most significantly, this mill utilizes alder wood—a process made possible after many years of experimentation during which particular emphasis was placed on how to most effectively debark this species.

Daily pulp production at the Anacortes mill is 120 tons of hardwood ammonia base sulphite, all of which is used by Scott Paper Co. in its trademarked paper products. The Anacortes mill has 137 employees, 18 of whom work in the woodroom department. A four-man crew suffices for woodhandling and 14 are assigned to the wood preparation work. The Anacortes wood department handles 5,000 pieces (eight-foot lengths) per eight-hour daily shift. The wood department operates 56 hours per week, and it speaks highly of the mill's management that so few man-hours are required.

The mill's furnish runs approximately 70 per cent alder, 25 per cent cottonwood, with the remaining approximately five per cent consisting of such species as maple, cherry, willow, cedar and birch found in the area. The development of a successful barking method for alder is an interesting one. It was found some time ago that generally unsatisfactory results are obtained when alder is cooked with a calcium base liquor. But when the Anacortes mill switched to ammonia base in 1952, the possibility of utilizing alder and other hardwood species was reexamined. Considerable experimentation was carried out at this mill and led, one year later, to partial use of alder. Increasingly larger consumption developed until the present predominantly alder furnish was achieved in 1955.

The species in question is red alder, a species native to the Pacific Coast from California to Southeastern Alaska. Anacortes mill people point with considerable pride to the fact that they pioneered the utilization of this wood. (And, moreover, they stress the importance of their original research work in selecting satisfactory barking equipment.) Until recently, they note, alder was just a "weed tree," for which there was generally no market. But with the development of this pulping know-how, the Anacortes mill has created a market which has resulted in generating income in excess of one million dollars annually for people in the area. The mill's consumption

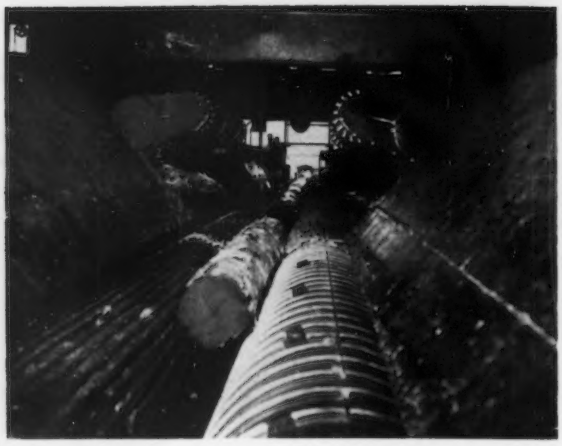
*One of Mr. Barker's last assignments before leaving for Europe was to visit a number of West Coast and Southern mills.



◀ Logs arriving by truck are transferred by Cary-Lifts to log transfer which carries logs directly to barking sheds.

Front end view of barker shows operator's control booth ▶ and a log which has just entered trough created by spiral roll (left of log) and fluted roll (right of log).

Rear view of barker shows logs coming through. Cutter heads are in raised position. ▶



◀ Operator in control booth can activate cutter heads and trough rolls individually with hand and foot controls.

now averages 40,000,000 board feet annually.

### Handling and Preparation

Logs are delivered to the mill by truck, barge and log rafts. The mill does not maintain a log pond in the usual sense of the word. The log storage area covers 10 acres. Truck and barge shipments are received in eight and 16-foot lengths. Log rafts now deliver eight-foot lengths exclusively. (The average log raft consists of 140 bundles, containing approximately 20 logs each). In addition, hardwood chips equivalent to 8,500 cords are purchased from a veneer mill in nearby Bellingham.

Log diameters range between six inches minimum and 23 inches maximum. Truck deliveries are unloaded directly onto the log transfer or stockpile by a crane or Pettibone Cary-Lift. Barges are unloaded by a crane which transfers the logs to a Cary-Lift machine for transportation either to the plant for direct utilization or to the woodyard for storage. Log raft deliveries (representing a small part of the total wood received at the Anacortes mill) are handled in the same manner as barge deliveries.

The log storage area is large enough to store 22,000 cords, but it is attempted to rotate logs in storage every 4 months. Logs stored in the yard are subjected to a continuous water spray which has been found quite helpful for the subsequent debarking operation. The practice of fresh water spraying was initiated three years ago, and since then the mill has found this simple practice a rather valuable expedient which assists substantially in keeping the bark from drying on the logs. Such spraying does not materially add to the moisture content of the wood which varies between 45 per cent and 60 per cent.

Once destined for production, the eight-foot length logs are transferred to the wood shed by means of a conventional transfer conveyor, 175 feet long, driven by four 20-h.p. motors. The logs are moved up an incline, where they are washed with a fresh-water pressure spray shower before being transferred into the barking shed. This pre-barking washing serves to remove loose dirt and to prevent it from later getting into the hogged fuel. The washing operation (100 pounds of water pressure) is activated by the transfer chain so that the logs are individually subjected to washing without undue waste of water. At this point an operator diverts the logs either to number one or number two barker as needed. The 16-foot-length logs (which are delivered to the mill by truck and barge) are lifted by crane onto a conveyor powered by a 20-h.p. variable speed motor, and moved to a 60-inch circular saw driven by a 40-h.p. motor. The saw cuts the logs into eight-foot lengths, which are then transferred to an auxiliary conveyor and moved to the barking shed.

Key Anacortes people pose for Paper Trade Journal's camera. Left to right are: H. L. Moore sulphite superintendent; N. W. Coster, Scott's West Coast manager of pulp mills; J. R. Lewis, general mill superintendent; M. W. King, wood mill supt.

### The Barkers

The mill's special barkers are Burnt-River Barkers, named after the saw mill in Baker, Ore., where they were first developed for use with pine. The two barkers, built by the Sumner Iron Works in Everett, Wash., were installed in July of 1955, after it was found that conventional hydraulic or mechanical barkers were

◀ After debarking, logs are passed to spudding deck for inspection and further manual cleaning as required.

Chip storage bin building and storage-to-digester conveyor as seen from top of the digester house. ▶

unsatisfactory in debarking alder. Prior to their installation, Coos Bay Pulp Corp. conducted considerable research on various barkers, including experimental set-ups of the special equipment now at the mill. It is believed that the installation of this hydraulically controlled mechanical barker is the first of its kind in the pulp and paper industry.

The Burnt-River Barker generally uses the same principle employed by conventional mechanical barkers. But an appreciable degree of the well-known shocks, vibration and mechanical wear usually found in mechanical barking have been eliminated to a great extent in these barkers because they are equipped with hydraulic drives throughout. Capacity of each barker is 15 cords per hour—five logs per minute. These barkers are specially designed to handle eight-foot log lengths.

Logs are conveyed through the Burnt-River Barker by two rolls, one a fluted roll and the other a spiral roll. The actual de-barking is accomplished by six rotating cutter heads, mounted on air-loaded, pivoted arms. Each cutter head is chain driven by a hydraulic motor, located in the pivoting arm directly behind the cutter head. While mill personnel usually refer to the heads as "cutter heads," this is actually a misnomer because the debarking action is one of abrasion. The cutter heads are fitted with spiral flutes which assist in conveying the logs through the barker as well as effectively removing the bark. Pressure of the heads on the logs varies from 200 to 500 pounds, depending on ease of barking. The trough created by the fluted and spiral rolls becomes the conveying base of the logs as they travel through the barkers. What is referred to as a "crazy wheel" (actually a guide wheel) presses the logs firmly into this trough while also assisting in barking by cutting into the bark prior to the log coming into actual contact with the cutter heads. (This guide wheel log cutting is referred to more accurately as "rupturing the bark" prior to subjecting it to the cutter head's abrasive action.) Each barker is equipped with a photo-electric counter for recording the number of logs run.

The hydraulic cutter drives are powered by 20-h.p. motors. Each motor drives one hydraulic pump which in turn powers one cutter head. The fluted roll is powered with a 10-h.p. motor and the spiral roll is powered by a 20-h.p. motor. The barker operator is seated in a control booth. Hand and foot controls are provided and the operator can individually control the various cutter heads, the guide roll, the fluted and the spiral rolls. Each forward "notch" of the hand controls activates the cutter heads, i.e., the actual debarking operation is controlled by the operator's hands, while wood feed (with the spiral roll) is controlled by the operator's feet.

## After Debarking

Emerging from the barkers, the logs are transported by two transfers onto a spudding deck where they are inspected and manually cleaned as required. These after-barking transfers are 40 feet long, driven by a 7½-h.p. gear head motor. A 50-foot-long conveyor then carries the logs to the chipper. Anacortes has a 300-r.p.m., 112-inch, six-knife Sumner chipper, powered by a 600-h.p. synchronous motor. After chipping, the ¾-inch average size chips are blown out of the overhead discharge chipper into a cyclone and from there to the chip screens via a 30-inch-wide, 530-foot-long conveyor. The chip screens are of conventional design and the rejects from the chip screens are carried to the fuel house where they are added to the hogged wood residue. Chip moisture content ranges from 45 to 60 per cent.

From the chip screens the chips are conveyed to the chip storage bin by a conventional rubber belt conveyor. The mill's chip storage bin has a capacity of 400 units. From the storage bin the chips are conveyed to the digester bin as needed. The digester bin has a capacity of 70 units.

Shrinkage, as a result of debarking, amounts to approximately 15 per cent at the Anacortes mill. But 25 per cent of the mill's fuel needs are supplied by recovered hogged waste from the barkers.

Scott Paper Co. exercises executive administration for this mill from its West Coast Division headquarters in Everett (where the company operates the world's largest bleached sulphite mill). Resident key people at the Anacortes mill are J. R. Lewis, general superintendent; J. S. Digby, plant engineer, T. D. C. Bulger, technical director; H. L. Moore, sulphite superintendent; M. W. King, wood mill superintendent; and C. W. Barr, maintenance engineer. The mill's operations are directly supervised by J. R. Lewis under the direction of Scott's West Coast manager of pulp mills, N. W. Coster.

*Especially prepared by B. Locking for Paper Trade Journal*

# What Happens on the Press Section of a Fourdrinier

**. . . a summary of the paper, "Long Term Studies of Water Removal and Moisture Distribution on a Newsprint Machine Press Section," by P. B. Wahlstrom, research director, paper machines, Karlstads Mekaniska Werkstad, presented at the CPPA Technical Section 1960 Annual Meeting.**

**The paper reviewed here is the first comprehensive study of the paper machine press section which is based on extensive on-machine testing as well as background laboratory work. The size and complexity of this study makes it necessary to draw many direct quotations from the paper and it is only possible to cover the major points treated in the paper, leaving out sections which also contain interesting material for more detailed study. The complete text will be published in the summer 1960 issues of Pulp and Paper Magazine of Canada.**

The factors determining water removal and moisture distribution were studied on a 1200 f.p.m. newsprint machine suction press section. The effect of each press variable is discussed and evaluated based on the experimental evidence gathered. Mr. Wahlstrom advances an entirely new theory of pressing which is contradictory to the established ones, and he is able through the results of laboratory and on machine testing to explain many aspects of pressing which have been previously disregarded or not understood.

The paper is reviewed by studying the author's work under three major classifications:

1. The new theory of pressing
2. Water removal
3. Moisture distribution at the presses and the factors affecting them.

The press section determines the drying costs and to a large degree the paper uniformity and is thus extremely important to machine operation and production. The efficiency of a press section is determined by the average moisture content and the moisture distribution of the sheet leaving it.

The press section on which this study was carried out was a typical straight through press section with rubber covered suction bottom rolls and granite top rolls. Due to the strength characteristics of the rubber covered suction rolls the nip pressures are low, nevertheless the results obtained, particularly the theory which has been evolved has application to any modern high speed press section.

## Wahlstrom's Theory Of Water Removal

The theory of the mechanism of water removal in a suction press which has been most widely recognized is that of Nissan, where it is claimed that little if any, water is transferred from the paper to the felt in the ingoing part of the nip. In this first stage, it is claimed that the felt alone loosens water due to compression, the water is transfered from the paper to the felt in the outgoing side of the nip due to the higher capillary action of the felt. The water thus transferred is removed from the felt during its next passage through the nip. Mr. Wahlstrom, in his theory, claims that all of the water removed from the paper is transferred in the ingoing side of the nip and that there is a water transfer from the felt to the paper in the outgoing side.

Figure 1 (Figure 7 in the original) show the pressing action divided into the three main phases: Phase I is the ingoing part of the

nip from the point where the paper enters the nip to the mid nip position; Phase II is the outgoing part of the nip from the mid nip position to the point where the combined fabric leaves; Phase III has no geometrical definition but covers the removal of the water from the press shell.

The press nip is geometrically defined by the diameter of the rolls and the compressibility of the rubber. The dynamics of the compression and expansion of the felt and paper can be determined through the knowledge of the nip geometry but is complicated by the capillary structure of both the felt and paper.

### Ingoing Part of Nip

Phase I, (Figure 1), is where compression takes place which results in first a saturation of the sheet and felt and second a transfer of water from the sheet to the felt and from the felt to the press holes. This phase, it is claimed, is the only phase where water is removed from the combined material of felt and paper to the holes in the suction press.

The compression forces involved in this phase are: forces in the combination of felt and paper; forces needed for compression; hydraulic force to move water through the felt and paper; and the capillary forces which must be overcome to remove water from the felt to the press holes.

The paper entering the nip has a much higher moisture content and a lower density than the felt and thus reaches saturation point before the felt. At the point of paper saturation, hydraulic forces building up in the paper set up a pressure gradient between the paper and unsaturated felt causing water transfer to the felt. Due to the nip geometry, two pressure gradients exist; one against the direction of travel and the other vertically through the felt and paper. Figure 2 (Figure 9 in the original) shows the idealized general picture of the flow pattern in the horizontal and vertical directions. The area above a hole is termed a drainage zone draining the felt and paper in the machine direction up to the next hole. The area between holes is called a press zone. The pressure is highest over a press zone and lowest over a drainage zone where the water is expressed into the holes. (Thus the sheet over a drainage zone is wetter and since his pattern continues through the press the shadow marking observed in the finished sheet can be partially explained.)

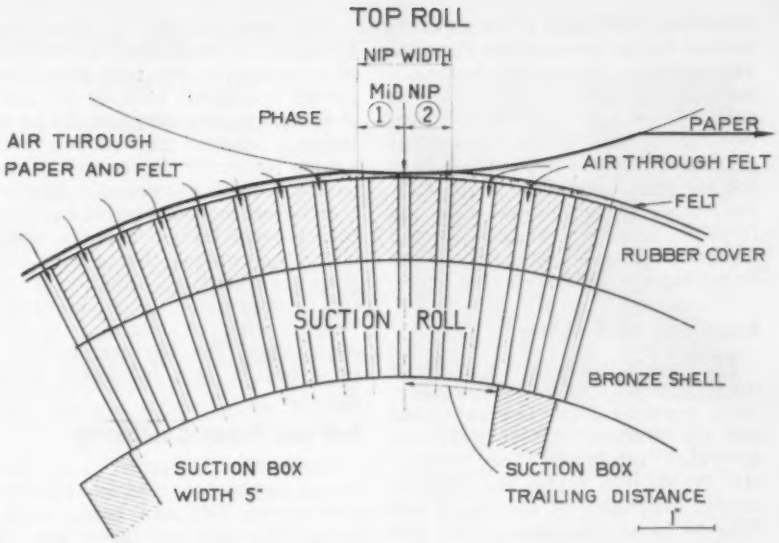



**Figure 1. Press phases and nip geometry.**

Most of the flow resistance in the fabric is in the horizontal direction since the distance from one drainage zone to another is about five times the vertical distance through the felt. The suction roll drilling pattern thus determines the horizontal distance of travel and decreasing the distance between successive holes in the machine direction is one method of improving the water removal. The permeability of the felt in the machine direction is also of considerable importance to good water removal.

A high rate of water removal in phase I is achieved through com-

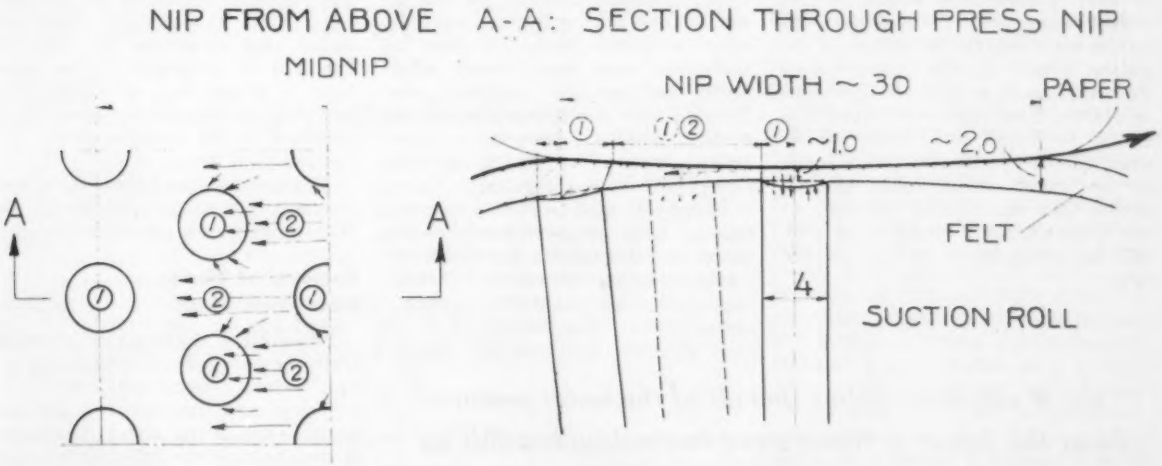



**Figure 2. Press and drainage zones in the press nip. Legend: (1) Drainage Zone. (2) Press Zone. Indicates direction of flow. Distances in m.m.**

pression. A felt with a low moisture content and a low machine direction permeability lowers the hydraulic load in the paper thus releasing more of the nip pressure for compacting the fabric. The specific nip pressure (i.e. the nip pressure in pounds per lineal inch divided by the nip width) provides the driving force for compression and a small nip width is preferable where the lineal nip pressure is limited.

### Expanding Part of Nip

Phase II is the expanding part of the nip where the felt-paper sandwich expands from the saturated mid nip position. In both materials air-water interfaces are created. Mr. Wahlstrom found the relative elastic expansion of the paper and felts to be of the same order and since the capillary forces in the two materials tend to redistribute the water to the smallest capillaries, the relative capillary size in the two materials is critical in determining the direction of water transfer. The author claims that both felt and paper pick-up water in this phase; the felt from the holes and the paper from the felt. Two factors affect this water transfer and results are presented in the paper on the compressibility of paper and felt and the relative capillary sizes of the two fabrics.

### Compressibility of Paper and Felts

Dealing with the compressibility first, Mr. Wahlstrom makes reference to the literature to determine the compression characteristics of paper. The results presented show that the prehistory of the sheet has a very pronounced effect on the compression behavior and that due to the visco-elastic properties of the paper some of the compression deformation is permanent and some is elastic. The elastic recovery was found to vary very widely, however, the determinations were made at low compression rates and he states that the elastic recovery at the rates normally found in presses will be comparable to that in the felt.

The compression of felts was found to be dependant on the rate of compression and that elastic recovery was about 40 to 50 per cent. It is also pointed out that when no water is removed from the nip there are no hydraulic forces to act and thus the lineal nip pressure applied is balanced by compression and surface tension forces. The nip width which determines the specific nip pressure is mainly a function of the felt compression and increases roughly with the square of the felt compression, the felt compressibility is thus a very important press variable.

### Felt and Paper Capillaries

Experimental results are presented in the paper on the relative size of the felt and paper capillaries. The capillary forces are determined and are shown to be of the same order as the other forces acting in the nip and are large enough to cause not only transfer between the two materials but also within the material depending on the capillary size distribution. For paper, the minimum and maximum size is calculated to be from 3.0 microns to 9.0 microns. The felt capillaries on the other hand vary from 65 to 100 microns. These capillary sizes have been calculated and are subject to certain limitations, the biggest one being the accurate determination of the fiber diameter and taking into account the effect of strands projecting from the individual wool fibers which effectively reduces the capillary size. Despite this limitation the mathematical analysis presents a theoretical reason for water transfer from the felt to the paper.

There is also separate experimental evidence presented in the paper to substantiate the claim for water transfer to paper in Phase II. When the paper disappeared from the press nip during a break, a betameter measuring the felt basis weight, recorded an increase in the moisture content of the felt. With no paper in the nip, less water is entering and in addition an increased amount of air is sucked through the felt by the vacuum box, both of these would normally be expected to reduce the moisture content of the felt. Instead of this expected decrease an increase was recorded of 0.3 pounds of water per pound of paper. This is small compared to the water load of the felt, but is large with regard to the paper moisture. The increase in felt moisture is thus the amount of water which would have been normally transferred to the paper.

Another experimental observation substantiating the Phase II theory is that the top roll of the press becomes wetter with no paper despite the lower moisture content of the felt. This can only be explained by the fact that the felt capillaries are larger than the ones in the paper and thus give up their water more easily.

Independent substantiation of Mr. Wahlstrom's Phase II theory comes from work on an experimental press section of the Albany Felt Co. They report that even with the finest felt and coarsest paper a transfer from felt to paper occurred. Amount of the transfer depended on the fineness of the felt surface. They also found that a double felt pressing resulted in a much wetter sheet than a single felt pressing. This has also been observed on a paper machine at the transfer press of a suction pick-up.

The practical and theoretical evidence points to the validity of Mr. Wahlstrom's new pressing theory.

### Removal of Water from Press Shell

Phase III is the removal of water from the press shell. Pressing is an equilibrium process with the water entering and leaving the section being equal. Water enters the press in the sheet, in the felt and through showers. Some water leaves through the vacuum system and press tray and the rest in the felt and paper.

***"The efficiency of a press section is determined by the average moisture content and the moisture distribution of the sheet leaving it."***

***"Mr. Wahlstrom claims that all of the water removed from the paper is transferred in the ingoing side of the nip and that there is a water transfer from the felt to the paper in the outgoing side."***

*"When the paper disappeared from the press nip during a break, a betameter measuring the felt basis weight, recorded an increase in the moisture content of the felt."*

Normally about 10 times the amount of water removed from the paper is recirculated through the nip by the felt and thus the hydraulic load in the nip is determined mainly by the felt moisture. The lower the felt moisture the greater the press efficiency. Felt moisture can be reduced by efficient water removal and the prevention of felt rewetting.

All of the water pressed from the paper and felt is deposited in the holes as mist. Some of the mist is removed by the vacuum system while the rest is thrown out of the holes onto the felt or into the press tray. Some is reabsorbed by the felt in the expanding (Phase II) part of the nip.

## Testing Methods Used

Two principal methods were used; press moisture and basis weight tests and the application of betameters to the felt and paper. The press test was used to obtain a true moisture and basis weight distribution before and after the presses and at the reel. During the test period all pertinent machine data was recorded. It was found that the ingoing moisture content of the paper was of great importance and since it is dependent solely on wet end conditions many of the wet end variables were also measured. The pertinent press conditions were:

Lineal nip pressure
Vacuum with and without paper
Nip width
Felt caliper, age, make, width and length
Temperature of the paper at the press.

The physical properties of the press rolls were also measured. The nip width was measured at the edge of the press, which was not a very satisfactory method.

Two stationary betameters were used, one on the paper alternately after the first and second press, and the other on the vertical felt run of the second press. Most of time the two betameters were employed simultaneously on the paper and felt of the second press. Stationary betameters give only the measurement at a fixed position and thus cannot be used to study moisture distribution, traversing betameters are necessary. The betameter sensitivity was one per cent for paper and 0.1 per cent for the felt.

Nip pressure distribution was determined by static nip impressions. The press wear was determined by measuring the crown curve of the roll new and removed. Tests made on the removed felts were: caliper profile, drainage resistance and on selected samples a full textile analysis was made.

## Factors Affecting Water Removal

Mr. Wahlstrom found that one of the major factors was felt age and its effect on felt properties and paper moisture. He found that the wet basis weight of one of the felts used decreased from about 1000 lbs. per 3000 sq. ft. to about 800 after 30 days. The decrease in wet basis weight shown in Figure 3 (Figure 26 in the original) was also accompanied by a decrease in the moisture content of the felt. The caliper also decreases very rapidly during the first week of the life and then more slowly during the remainder. It appears from his work that the felt gets mechanically conditioned through its passages through the nip and this makes the felt denser, drier and thinner and takes place during the first seven to ten days. During the rest of the life caliper and weight are reduced slowly due to wear. The studies using the betameter to measure wet basis weight showed fundamental differences in the felt behavior at the first and second press.

The changes in felt properties with age have an effect on the moisture content of the sheet leaving the press. As the felt becomes conditioned the moisture content of the paper drops to an equilibrium level. He found that plain weave felts reach their equilibrium conditions faster than R.B.T. weave felts; he also found that a combination of an R.B.T. weave felt as the first press felt and a plain weave as a second press felt reached equilibrium faster than any other combination tried. The more open R.B.T. felt is more suitable for the large flow of water in the first press, whereas the denser plain weave felt is more suitable for second press condi-

*"Independent substantiation of Mr. Wahlstrom's Phase II theory comes from work on an experimental press section at the Albany Felt Co."*

**Borje Wahlstrom graduated in chemical engineering at the Royal Institute of Technology at Stockholm in 1950.**

**From 1951 to 1953 he worked at the central laboratory of cellulose industry in Stockholm, and from 1953 to 1956 at the Billeruds Co. at Gruvon. In 1956 he came out to Canada and worked with Jasper Mardon in the papermaking research group of Anglo Paper Products, during which time the work on pressing, which forms the subject of Mr. Wahlstrom's paper, was carried out.**

**Returning to Sweden in 1958, Mr. Wahlstrom worked for the Korsnas Co. at Gavle, until taking up his present position as research director, Paper Machines, K.M.W., Karlstadt, Sweden.**

***"The lower the felt moisture the greater the press efficiency. Felt moisture can be reduced by efficient water removal and the prevention of felt rewetting."***

tions. A change in felt properties with age influences the paper moisture not only through the running in period of seven to ten days but also through a very short wetting in period of two to four hours.

### Effect of Vacuum

Experiments were done to determine the effect of vacuum box position and vacuum on the felt and paper moisture. Due to the narrowness of the box no conclusive results were obtained about the position. He did find, however, that the air velocity has a direct relationship with the moisture content of the felt on the outgoing side of the nip. It was also found that the air flow was independent of vacuum above about 12 inches of mercury.

### Effect of Press Doctors

The press doctor as shown in Figure 4 (Figure 41 in the original) had a marked effect on the moisture content of the felt and paper leaving the press. Felt moisture content was reduced five to six per cent and in the paper moisture about four per cent.

### Effect of Ingoing Moisture

The very large difference in the amount of water removed from the paper in the first and second presses suggested that these presses behaved differently in regard to the variable concerned. In the first press the resistance to flow is much more important than in the second press, whereas the increased compression of the sheet in the second press makes the compression and surface tension forces more significant. The ingoing moisture content determines the flow of water in the nip and thus the magnitude of the hydraulic forces. With constant nip pressure increasing moisture content will increase the outgoing moisture content to a degree determined by the relative magnitude of the compressional, capillary and hydraulic forces. The smaller the hydraulic component (the lower the moisture content of the sheet), the variations in ingoing moisture mean less at higher nip pressures.

The relationship between in- and outgoing moisture content is similar for both presses, although for the first press 10 to 30 per cent of a change in ingoing moisture will appear in the outgoing side, while from the second press 30 to 50 per cent of a change in the ingoing will appear in the outgoing side. Generally a low moisture content leaving the couch and first press will improve the possibilities of obtaining low moisture after the second press.

### Specific Nip Pressure

The specific nip pressure is the driving force for water removal at the press and is thus one of the most important press variables. Two factors affect the specific nip pressure: felt compressibility and roll hardness for a given lineal nip pressure. A felt with a low compressibility in combination with hard rolls will give

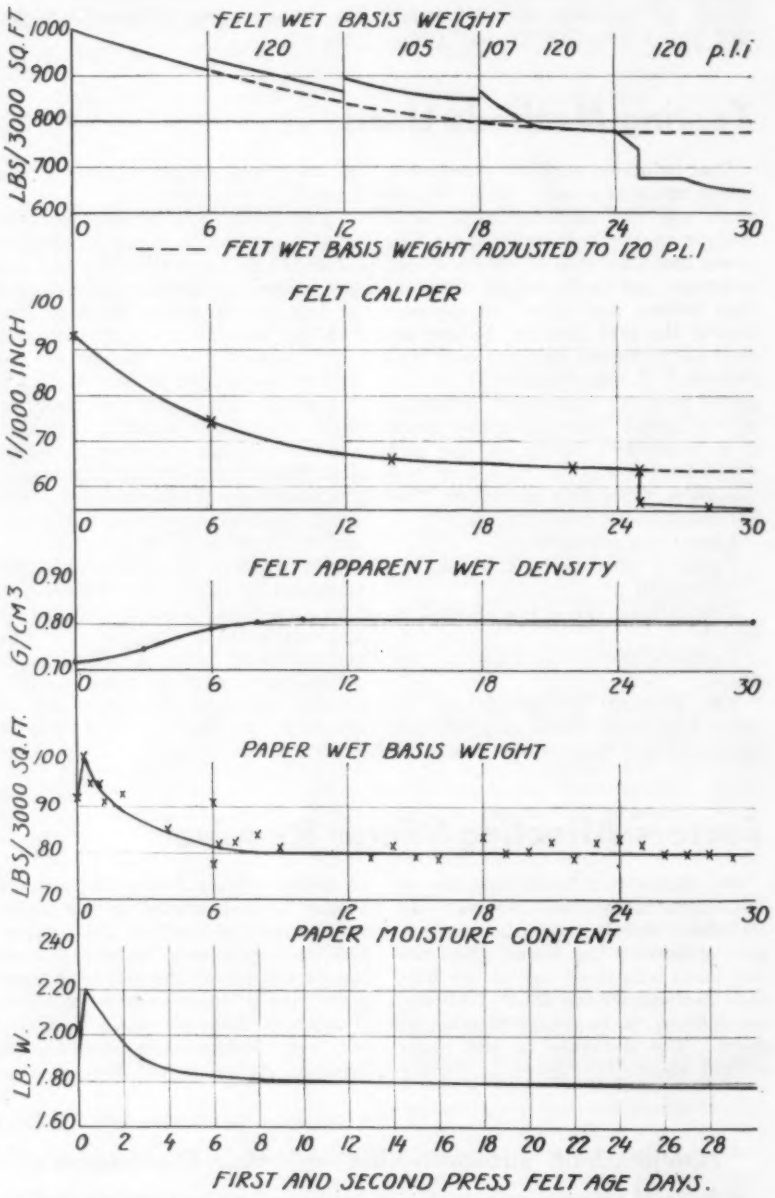



**Figure 3. Variation of felt and paper properties with felt age at the second press. First press felt plain weave. Second press felt R.B.T. weave.**

a narrow nip which gives the highest specific nip pressure for a given loading. The effect of rubber hardness is illustrated in the paper where a five per cent reduction in outgoing moisture was achieved when the rubber hardness was increased from 45 to 17° P&J.

### Effect of Temperature

Temperature has a very important effect on water removal due to the reduced surface tension and viscosity at elevated temperature. A temperature increase of 10°F. at the headbox was estimated to reduce the moisture content from the couch ten per cent, after the first press five per cent, and after the second press two per cent. Temperature is one of the most effective ways of reducing the moisture content of the sheet leaving the press section. Application of steam on the wire or heating the paper between the presses are two common methods of increasing the temperature.

### Effect of Felt Type

Data is presented in the paper on the effect of felt quality on water removal at the presses. It was found that a felt with a high density and low compressibility had better water removing ability than those with low density and high compressibility. The improvement in water removal which was found during the first week of a new felt was due mainly to compaction. It was found that variation in felt density was of greater importance than the variation in felt porosity indicating that the flow resistance in the felt was normally less important than the capillary activity and compressibility.

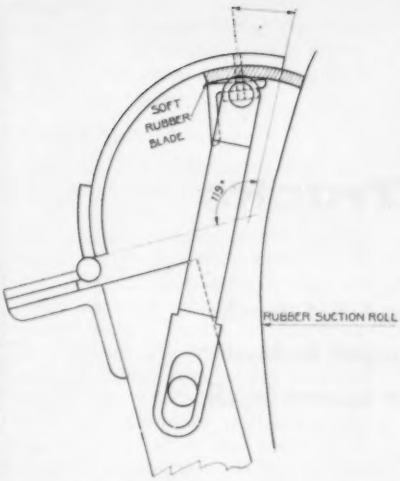



**Figure 4. Press doctor.**

Low compressibility gives a small nip with a resulting high specific nip pressure and a short time for transfer of water from felt to paper in the expending part of the nip; both of these are beneficial to good water removal. High felt density means smaller capillaries which also tends to reduce the water transfer in the outgoing part of the nip. It is generally known however, that dense felts have a greater tendency to fill.

## Factors Affecting Moisture Distribution

The variation in moisture content across the width of the machine can be as high as the reduction in moisture content at the second press. (At the beginning of his study, Mr. Whalstrom found this to be usually the case). Three main factors determine the moisture distribution leaving a press:

Ingoing moisture distribution
Nip pressure distribution
Resistance to water removal.

The relationship between in and outgoing moisture content at a press has already been reviewed. At any given position across the machine a variation in ingoing moisture has a deleterious effect on the outgoing moisture content. Thus it is most important that the moisture distribution leaving the couch and first press be even if an even moisture distribution after the second press is to be achieved.

**Nip pressure distribution** is determined mainly by the crown curve, the relationship between nip pressure and crown, distribution of applied loading, the rubber hardness distribution and the felt caliper profile. The crown curve and nip pressure-crown relationship are best determined experimentally and evaluated with press tests. Rubber hardness distribution is a factor which is difficult to control but should be checked for all new and recovered rolls.

**Press and felt wear** determine to a large extent the evenness of the moisture distribution. The wear of rubber covered suction rolls was found by the author to be proportional to the nip pressure and rubber hardness in degrees P&J. The harder the rubber the lower was the wear rate for a given nip pressure. The effect of wear is to give an even nip pressure if possible, thus an even loading front and back is very important throughout the life of the roll. If the roll is worn unevenly, due to uneven loading, at the beginning of its life all of the felts which are used on this press for the remainder of its life must wear to suit the roll and thus felt life drops.

**Felt filling** can cause very large variation in outgoing moisture distribution. Two sources were found by Mr. Wahlstrom to be largely responsible for localized filling. One was the use of crumbs to straighten the felt runs and the other was allowing the felt to run together in the middle.

The factors which affect moisture distribution are in reality those which can be controlled by good operating practice. In contrast the factors affecting water removal are largely those of the physical properties of the press rolls and felts and are beyond control by the operators.

### Summary

In this review, the main points of Mr. Wahlstrom's paper have been covered and the significance of his findings is evident. An entirely new theory covering water removal at a suction press has advanced and is substantiated by extensive experimental work. Through this new theory he has shown how it is possible to study and characterize a press section and thus increase the efficiency of this part of the paper machine. The results which are presented in the paper dealing with water removal and moisture distribution are specific to the machine which was studied. They do, however, give an outline of a method of attack which is applicable to any paper machine press section. The size of complexibility of the paper makes detailed study very worthwhile for an improved understanding of pressing.

***"The effect of rubber hardness is illustrated in the paper where a five per cent reduction in outgoing moisture was achieved when the rubber hardness was increased from 45 to 17° P&J."***

# Fifty Years Of Hand Lift Trucks

**Revolutionary in 1910, hand lift trucks developed for and by the paper industry have since gained acceptance in nearly all industries.**

**Tim F. Moriarty**

First hand lift truck built by inventor Cowan to reduce handling and spoilage had capacity of 2000 pounds.

Before April of 1910 the paper industry depended on the well known four-wheel pull trucks and the two-wheel stevedore vehicles for moving loads in mills and factories. In that month Herbert W. Cowan, superintendent of White & Wyckoff Mfg. Co. in Holyoke, Mass., working with his plant maintenance engineer finished an experimental lift truck model. Even before the truck was assembled he had designed a load "holder" which consisted of two wood stringers joined together by several boards placed crosswise and secured by nails. Another name for the runners which consisted of two by fours was "skids." The combination of the two comprised the Lift Truck System or Unit Load method of handling.

Mr. Cowan had transferred from a cotton cloth mill to the paper converting plant about six years before and in that period had studied carefully the handling of paper stock from the receiving platform, to storage area, to machines, to packing rooms and finally to shipping. The methods used in his plant were similar to those used by other firms which transformed paper into pads, note books, composition books, typewriter paper and boxed writing paper.

## Too Many Handling Operations

He was not satisfied with the system then in use for several reasons. The paper stock received from the local mills came strapped on four-wheel pull trucks. It had to be taken off the trucks in the receiving area and placed on the factory's trucks. These were hauled to storage areas where the paper was lifted from the trucks and placed on the floor and in shelves. When production required some of the paper stock it was picked up by hand, placed on a truck and moved to the machines. At the various operations there were more handlings and each handful could mean the spoiling of the top and bottom sheets of each "grab."

Mr. Cowan wanted to reduce the number of handlings of the paper to save time. He felt if that were accomplished he would cut the labor cost and the street trucks would be tied up less. Also the heavy freight car demurrage bills would shrink considerably. A large volume of packaged paper came to the factory over the rails.

## First Truck Showed Savings

With the first lift truck during the test period 50 homemade wooden platforms were used. After three months the records which had been carefully kept, when compared with previous records, showed a very substantial saving. Economies were also effected in handling the paper that came in wooden cases from distant mills.

Long before the test period ended the executives of the 20 paper mills and the half dozen converting plants in the city had learned of the experiment and had endeavored to be kept posted on the results. When they were shown the White & Wyckoff figures on the three-month tryout they agreed on one thing—the system was a must for the mills and factories. They prevailed on Messrs. Cowan, White and Wyckoff to plan for the manufacture of lift trucks to be sold to the paper industry.

Before the end of 1910 trucks had been installed in some of the mills and factories in Holyoke. That city was then rated as the Paper City of the World. American Writing Paper Co. with its 12 mills, Crocker McElwain, Whiting Paper Co., Valley Paper Co., Parsons Paper Co., National Blank Book Co., American Paper Co. and Eureka Mfg. Co. were among the early users.

During 1911 the Cowan Truck Co. which occupied space in the White & Wyckoff plant steadily increased production and practically all the trucks were supplied to factories and wholesalers who handled paper, also to printers and publishers. Few firms in the paper industry felt this was not a good investment.

## Truck Capacity Increased

The first model built had a lifting platform measuring 18 inches wide by 27 inches long and 6 inches high. The capacity was 2,000 pounds. Model No. 2 which followed early in 1910 had a lifting platform 36 inches long with capacity of 2,500 pounds. In the next five years capacities increased to 5,000 pounds. The widespread adoption of the Cowan system was doubtless due to the willingness of

the firm to ship the first truck on trial—customer had the privilege of return for full credit. With the first truck sent to each firm an all-wood skid platform was attached to the truck in the size specified by the purchaser. An instruction sheet was attached to the underside of the skid platform. That made it possible for many firms to make their own skid platforms, or it would be simple to secure their requirements from an ordinary woodworking plant.

As early as 1913 the Mount Tom Sulphite Pulp Co. decided that shipment of its wet lapped pulp on skid platforms was practical and for years thereafter its carload shipments were made that way. One disadvantage was the necessity of returning the empty skid platforms to the pulp mill at Mt. Tom Junction, Mass., adjoining the city of Holyoke. In each car consigned to a customer who did not have a lift truck the shipper included a Cowan hand truck for unloading. In this way a car could be fully unloaded in a few hours as against a day to a day and a half in the old way. The customer usually decided to keep the loan truck, but they had the privilege of return.

Not long afterwards many paper mills effected economies by shipping flat paper on wooden skids. The paper was held securely in place by steel strapping and usually reached its destination in good condition. About three cases of paper comprised a skid load. The mills saved packing money, and the customers found it easier to handle the paper ordered.

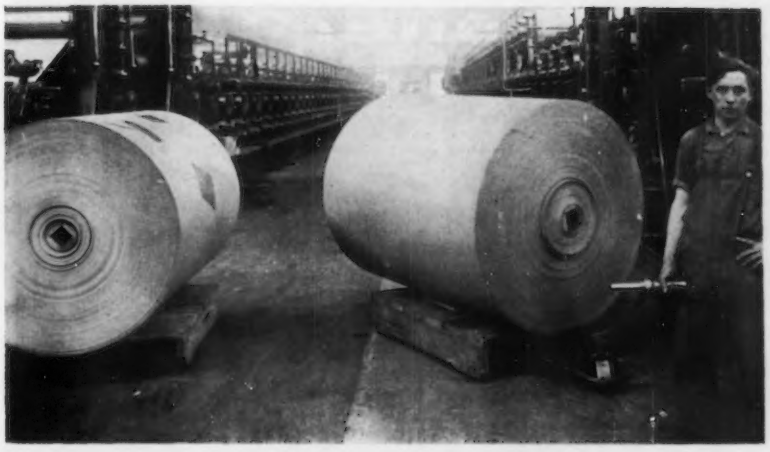
## Method Spreads

By 1928 the shipping of skid platform loads had spread to other industries and in that year the tin plate mills began to ship their product on pallets. Pallets were preferred to skid platforms because they had less underclearance and the loads rode better via rail. To get the customers to cooperate, the mills at that time made an allowance of $72 per car. Those firms which had powered fork trucks did not need any new equipment to get under the pallet loads. Those without such equipment had to invest in a hand lift truck with forks, but the cost was soon covered by the allowances granted by the mills. The practice of shipping unit loads on skids or pallets has since spread into many industries and into many countries.

By 1914 the Holyoke truck firm found several energetic competitors prepared to battle for a share of the lift truck business. They also met with competition from the builders of electric and gas rider type trucks. In 1940 the first Walkie type electric truck was offered for sale and during World War II the United States Government ordered hundreds of these for use by the services. The government also invested in hundreds of high lift fork trucks and thousands of pallets. Thousands of young men who went into the service in World War II got an excellent education in material handling methods. On their return to civilian life they were boosters for the various types of lift trucks they had seen operating in the camps.

Mr. Cowan and his associates who nursed the lift truck from its infancy had little idea of the effect it would have on manufacturing, storage and shipping activities. Today the trucks are operated in universities, hospitals, department stores, super markets, etc. Also the tractor-trailer units seen on the highways were based on Cowan's little truck that made unit load handling possible. As the 50th anniversary of the system is observed this year the paper industry can be proud of the important part it played in the development of the industry. Certainly the economies effected in mills, factories and warehouses through handling unit loads have meant much to our economy. Also the advances made by shipping goods on skid platforms and pallets have been important not to mention the tremendous savings effected by making use of previously wasted air space by stacking two to four pallet loads in the same floor space previously limited to one load.

**Old photograph shows workmen unloading railroad car at White & Wyckoff plant. Unloading times were cut from days to hours.** ▶



**▼ Lift truck system was quickly adapted to handling rolls of paper as shown in this old photo at a mill in Holyoke, Mass.**

# Future Paper and Board Production and Pulpwood and Water Requirements

**The predictions for 2000 range from 105 to 240 million tons output in this country or three to seven times current production.**

Projections of paper and board production for the year 2,000 range from that made by the Forest Service, U. S. Department of Agriculture, of 105 to 135 million tons, to 155 million tons made by the Business and Defense Services (BDSA) Administration, U. S. Dept. of Commerce, to 240 million tons derived from Resources from the Future (RFF), Inc., data. These projections, when translated into pulpwood requirements for the year 2,000, result in 116 to 149 million cords (Forest Service), 171 million cords (BDSA), and 264 million cords (RFF). Similarly, estimates as to the number of new large pulp, paper, and board mills that would be required to produce the quantities of paper and board output in the year 2,000 by these statistical projections would come to 237 to 337 based on Forest Service figures, 403 for BDSA projections, and 687 based on RFF data. These estimates are based on a study prepared by the Forest Products Division, BDSA, for use in a special report on future water requirements recently released by the Senate Select Committee on National Water Resources.[1]

## Water Requirements

An increase in water intake by the paper and allied products industries (Major Industry Group 26) from 1,607 billion gallons in 1954 to 6,893 billion gallons in 1980 and 16,173 billion gallons in 2000 is projected in the Senate report on the basis of median forward estimates of national economic growth development by RFF. In comparison, by employing projections of national economic growth developed by BDSA the water intake requirements of the paper and allied products industries would be 5,252 billion gallons for 1980 and 10,458 billion gallons for 2000.

## Mill Size

The location of plants for the manufacture of pulp, paper, and board is based primarily on current and future availability of commercial timberlands and commercially available fresh water. Further, over recent years necessary economies in manufacturing have dictated the construction of large integrated mills of 100,000 tons to 500,000 tons annual capacity, incorporating the production of wood pulp together with principal grades of paper, paperboard, and building boards.* (For purposes of this study an average mill of 300,000 tons per year was used.) In many instances this integration is carried farther to incorporate at the same millsite converting of the paper and board into end products, such as boxes, bags, etc. In addition to timberlands and water, there are other economic considerations such as proximity to markets, relative transportation costs, labor availability, and related matters.

## Wood Availability

The timberland resource situation in the United States was appraised by the Forest Service of the Department of Agriculture in its publication "Timber Resources for America's Future," published in 1958. This report points out that important areas of privately owned commercial timberlands available for acquisitions are comparatively limited. There are 4,500,000 private owners (mostly farmers) of small parcels of woodlands accounting for 55 per cent of total commercial timberlands in the United States. Federal, State, county, and municipal ownership accounts for 26 per cent, the bulk of these public holdings being under control of the Forest Service of the U. S. Department of Agriculture. The forest products industries have medium and large holdings amounting to 12 per cent, while other private medium and large holdings account

*(Continued on page 54)*

[1] Water resources Activities in the United States, Future Water Requirements of Principal Water-Using Industries, Committee Print No. 8, 86th Congress, 2d Session, April 1960.

From the "Pulp, Paper and Board Industry Report, June 1960" of the BDSA, released July 6, 1960.

*Editor's Note:* The above statement could be misleading. The average U. S. paper and board mill output is now about 100 tons per day or 33,000 tons per year. There have been extremely few new paper or board mills built in this country since 1945 having an annual output of 100,000 tons, *excepting* for liner board and newsprint production. There have been only two new newsprint mills built in this country since World War II, but there have been a number of large liner board mills and the latter product accounts for about 17% of the total paper and board production.

**TABLE I**

**COMPARISON OF BDSA AND RFF INDEXES**

| Source | 1959 | 1980 | 2000 | Percent increase, 2000 over 1959 | Average annual percent increase (compounded) |
|---|---|---|---|---|---|
| By RFF (median) | 169 | 482 | 1,190 | 604 | 4.9 |
| By BDSA | 169 | 370 | 773 | 357 | 3.8 |

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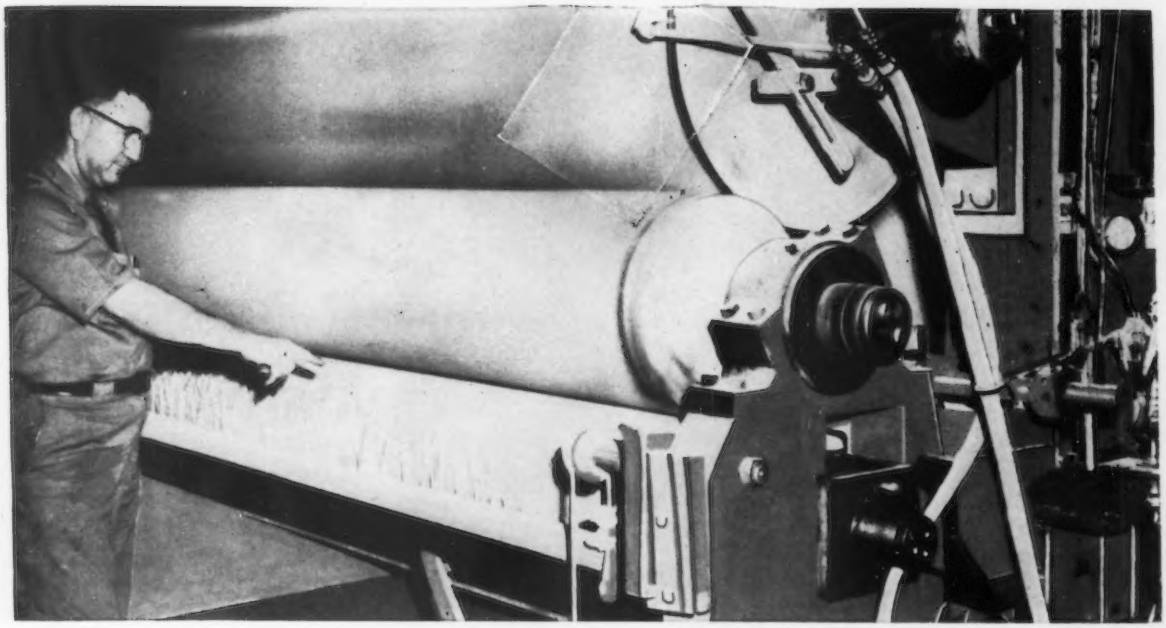

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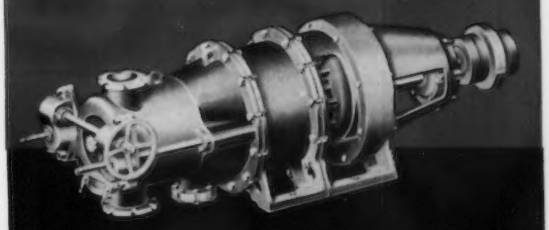

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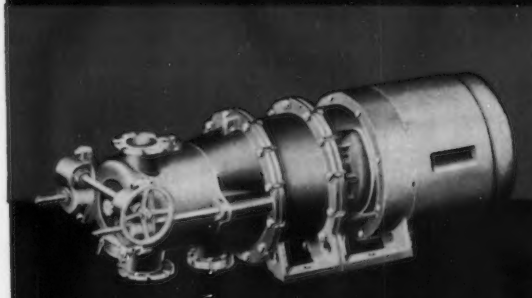

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**TABLE II**

**NEW MILLS AND PULPWOOD REQUIREMENTS ACCORDING TO DIFFERENT PROJECTIONS**

**Comparisons of BDSA, Forest Service, and RFF Projections of Total U.S. Paper and Board Production, Cords of Pulpwood and Number of New Mills Required**

| | Production of paper and board (Millions of tons) | | | Requirements for pulpwood[1] (Millions of cords) | | | Number of additional large modern paper and board mills (300,000 avg. ann. capacity) required to meet |
|---|---|---|---|---|---|---|---|
| Agency | 1959 | 2000 | Tons increase 2000 over 1959 | 1959 | 2000 | Cords increase 2000 over 1959 | projections to 2000 |
| BDSA | 34 | 155 | 121 | 37 | 171 | 134 | 403 |
| Forest Service[2] | 34 | 105-135 | 71 to 101 | 37 | 116-149 | 79 to 112 | 237 to 337 |
| RFF (median) | 34 | 240 | 206 | 37 | 264 | 227 | 687 |

[1] Estimated by BDSA on basis of 1.1 standard cords (of 128 cu. ft.) per ton of paper and board production as derived from 1958 Census data.

[2] Median and Upper projections.

for the remaining seven per cent of the total. Since these data were compiled by the Forest Service, there have been many important timberland acquisitions by large pulp and paper companies. Most available large consolidated commercial timberland areas are already under ownership or control of the important existing forest products manufacturers, especially pulp, paper, and board companies.

The Forest Service study published in 1958 indicates that sufficient commercial timber of pulpwood quality should be available to meet the needs projected by the Forest Service provided intensified forestry management of timberlands is increased by the Government and by commercial owners, especially the small woodland. owners. In addition, full utilization of cull trees, tops, and wood waste from other forest products industries must be intensified. The Forest Service has estimated potential realizable annual growth possible on commercial timberlands in the United States totaling 27.5 billion cubic feet (table 281 on p. 477 of "Timber Resources for America's Future"). In terms of standard cords of pulpwood this would yield a maximum potential annual growth in the future of approximately 370 million standard cords available for all forest products industries and other uses such as fence posts, fuel-wood, etc.

### 700% Increase

The RFF projected index of pulp, paper, and board production to the year 2000 points to an increase in necessary domestic production amounting to about 600 per cent above that produced in the year 1959 (or a total of 700 per cent of the 1959 figure) compared to less than half this increase estimated by the Forest Service.

Table I shows the comparative differences of pulp, paper and board production indexes between the BDSA and the median RFF analyses (1954 = 100.)

A comparison of forecast data for the year 2000 showing paper and board production, pulpwood requirements, and number of additional mills needed, based upon BDSA, Forest Service, and RFF data, is shown in Table II.

### Water Requirements

The Senate report projects the anticipated future water intake requirements for six of the principal water-using industries of the United States and includes projections of corollary data including employment, water intake per employee, water intake per unit of production, and significant technological or other factors that will affect the trend of water usage in the industries studied.

Estimates have been made also of the proportional distribution of the national totals within the 22 water-use regions adopted by the Senate Committee with consideration to probable future trends which would influence the applicable industry.

The methods by which data were employed to arrive at the projections of water intake requirements and the corollary data for the six selected industries are contained in the Senate Committee's Report. The appendixes to the complete report include also the data compiled for each industry group based on the BDSA indexes. A limited supply of the Senate Select Committee Report (Committee Print No. 8) on "Future Water Requirements of Principal Water-Using Industries" is available upon request to the Forest Products Division, BDSA, U. S. Department of Commerce, Washington 25, D. C. (Restrict requests to single copies.)

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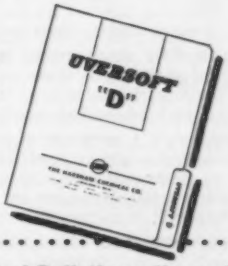


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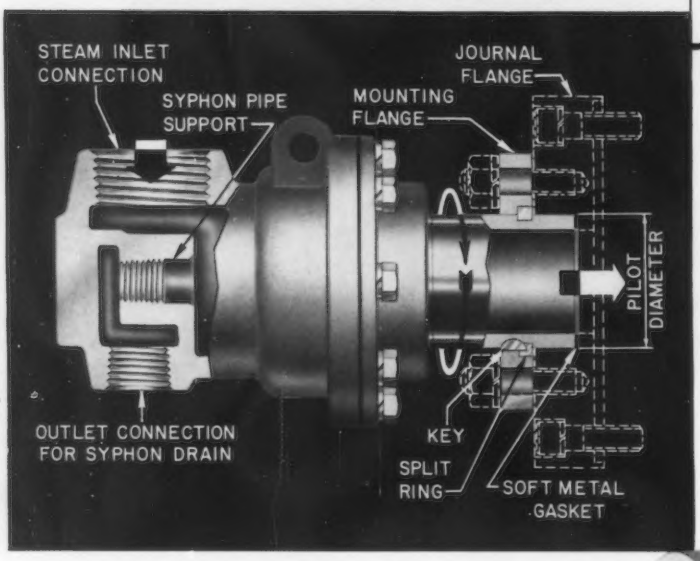


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**Lorain 26**

Gives construction details on this ¾ yard, crawler mounted model and job applications for use as shovel, crane, clamshell, dragline, hoe, log loader, pile driver and magnet. Bulletin 26751-0. Thew Shovel Co., Lorain, Ohio.

**Screw Conveyor Drives**

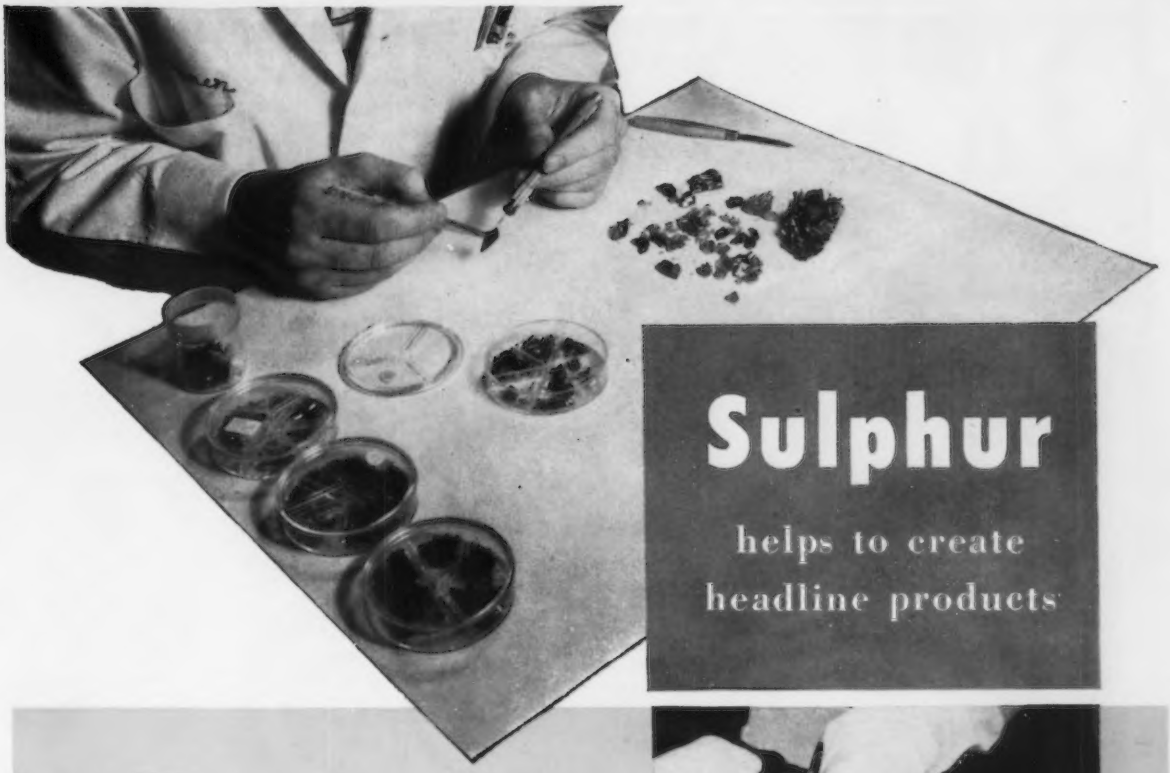
Presents details on these drives which are available for applications in range from ½ to 30 h.p., in four ratios, designed to bolt to standard trough ends. Bulletin 7106. Falk Corp., Dept. 255, Box 492, Milwaukee 1, Wis.

**Tubeaxial Fans**

Describes the modern construction features of Type BT and BTV belt-driven tubeaxial fans. Also includes data on ventilating system designs with emphasis on hood design and open surface tank ventilation. Propellair Div., Robbins & Myers, Inc., Springfield, Ohio.

**Twin Load Center Line**

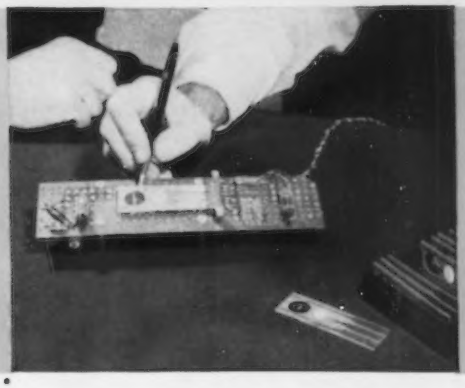
Contains a photograph, wiring diagram and listing of ratings, circuit capacities and pertinent ordering information for



# Sulphur

helps to create headline products

## CdS • • • *a new concept in field-effect transistor design*



General Motors Research Laboratories has recently announced the application of a new transistor material ... the cadmium sulphide crystal which offers several distinctive values over the single type atomic material. Its outstanding characteristic is that it is controllably sensitive to and affected by light and other radiations.

CdS provides another interesting development where Sulphur is importantly in the picture ... a development that may have far-reaching effects in the broad field of electronics.

**Sulphur** and its many derivatives, either directly or indirectly, have a part in the creation of countless products, adding to the strength of our economy. Our business is to produce Sulphur—molten as well as solid—and have it available in sufficient tonnages at several departure points to serve any plant in the United States or Canada. Supplementing this basic policy, we are developing centralized distribution centers for quicker service.

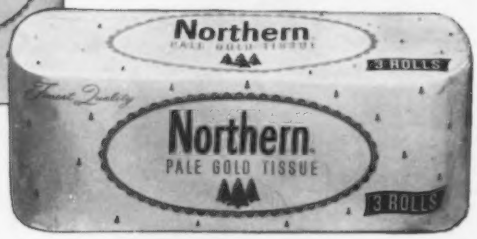
**TEXAS GULF SULPHUR COMPANY**

75 East 45th St., New York 17, N. Y.
811 Rusk Ave., Houston 2, Texas

*Sulphur Producing Units:* Newgulf, Texas • Spindletop, Texas • Moss Bluff, Texas • Fannett, Texas • Worland, Wyoming • Okotoks, Alberta, Canada

"We find our Hayssen installation efficient and economical."

Mr. G. K. Klaus,
Converting Superintendent
MARATHON CORPORATION
Green Bay, Wisconsin




# Hayssen Wrapping "pays off" for Northern

Paper Converters everywhere find Hayssen Automatic wrapping most efficient and economical. The neater, tighter wrap adds sales appeal and product protection never before attainable. Hayssen machines are built for years of trouble-free perfect packaging production.

Wraps all ream paper, memo pads, tablets, envelopes, loose leaf fillers, office stationery, sales books, books, gift wraps, greeting cards, napkins, toilet tissue, towels, picture puzzles, tags, seals, etc. Let our experienced packaging engineers help you with your packaging problems. Write for our new Paper Products Wrapping Brochure TODAY!

**HAYSSEN**

MANUFACTURING COMPANY • Dept. PT-6 • SHEBOYGAN, WIS.

**first in Automatic Packaging Since 1910**

Albany • Atlanta • Boston • Chicago • Dallas • Denver • Detroit • Houston • Jackson, Miss.
Los Angeles • Minneapolis • New York • Philadelphia • St. Louis • San Francisco • Montreal • Toronto

each catalog number in the G-E line. Booklet GED-3625. General Electric Co., Plainville, Conn.

**SVS Variable-Speed Sheave**

Provides additional technical data and new list prices on these sheaves which can be adjusted to desired pitch diameter by turning an adjusting screw. Bulletin 6102. T. B. Wood's Sons Co., Chambersburg, Pa.

**Tractor Loaders**

Bulletin MS-1373 features the TL-14 and contains information on the two transmissions available for the 83 h.p. unit, a bucket selection chart and complete specifications. MS-1386 is a spec sheet covering the recently introduced TL-12 tractor loader. Allis Chalmer Mfg. Co., Milwaukee 1, Wis.

**Tapioca Flour For Corrugating**

Includes formulas for using No. 61 Thai Crown tapioca flour in a single starch system, dual starch system, double backer and dual starch system single facer, all for a 666-gallon mix. Report. Morningstar-Paisley, Inc., 630 W. 51st St., New York 19, N. Y.

## OBITUARIES

**William A. Brown,** 52, treasurer and controller of The Orr Felt & Blanket Co., Piqua, Ohio, died on June 5. Death was attributed to a coronary occlusion.

Prior to joining Orr in 1950, Mr. Brown was with the Internal Revenue Service, in Toledo, and the Cooper Tire & Rubber Co. in Findlay, Ohio.

**Russel P. McCallum,** 46, of Brookline, Mass., vice president of the Boston Envelope Co., Dedham, died suddenly June 24 at his summer home in Falmouth.

He was the son of the late Edgar McCallum, founder of the company.

**Peter N. Ottersland,** 79, of Watertown, N. Y., retired engineer with the Bagley and Sewall Co. for 23 years and later consulting engineer with the Diamond Match Co. and the Carthage Machine Co., died of a coronary thrombosis.

Mr. Ottersland was known nationally and internationally in the papermaking industry for the many domestic and foreign patents that he had on various types of papermaking machinery.

# FASTER STRAPPER FOR HOPPER PAPER

*At Hopper Paper Company, Taylorville, Illinois, Idea No. S3-57 is viewed by Acme Idea Man Charles Apfelstadt who helped develop it.*

In the past, this paper company strapped skids—averaging 2600 pounds—by hand. The work had to be handled at several locations to keep pace with production.

Today, with their fully-powered Acme Steel A4A6 Steelstrapper—which tensions, seals and cuts by air power—one man straps an average of 25 skids a shift! Tension is even. The entire operation is centralized.

What do *you* bundle, bale or unitize? Your Acme Idea Man can bring the industry's broadest background to your assistance. For more information, mail the coupon.

ACME STEEL

IDEA LEADER IN

## STRAPPING

ACME STEEL COMPANY
Acme Steel Products Division
Dept. P55-70
135th St. & Perry Ave.
Chicago 27, Ill.

Please send me Idea No. S3-57 and examples of how major companies in my field use Acme Steel Strapping.

*Name*_____

*Title*_____

*Firm*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

*FROM DU PONT RESEARCH . . .*

# The first Titanium Dioxide Pigment

**COMPARISON OF RETENTION PROPERTIES** between "Ti-Pure" HR and conventional $TiO_2$ is demonstrated by Dr. Harold C. Brill, Paper Section Manager, at the Du Pont Pigments Department, Technical Service Laboratory. Mixtures of chlorinated starch and pigment were prepared and then poured through filter paper. Note particles of the conventional pigment have run through the filter paper in left test tube, while the HR filtrate in the right test tube remains clear. HR has not passed through the paper. Your Pigments Representative will perform this desk-top experiment for you in your plant, if you wish.

# expressly designed for wet-end addition

# TI-PURE® HR

## offers high one-pass retention...cuts pigment costs up to 15% in the presence of starch

Now you can cut the amount of titanium dioxide pigment added in the wet-end and still give uniform high brightness and opacity to bond, offset and other quality printing papers. The reason is new Du Pont "Ti-Pure" HR—the first titanium dioxide pigment developed expressly for papermaking.

"Ti-Pure" HR offers better one-pass retention in the presence of oxidized starches than any other pigment. (The HR stands for High Retention.) In systems without starch, HR has retention equal and sometimes superior to commonly used beater-grade pigments.

### Plant run shows difference in retention

In a typical plant run, the titanium dioxide content of finished sheets showed these differences: conventional titanium dioxide plus a retention aid, 5.0%; "Ti-Pure" HR, under optimum conditions, 6.4%.

This superior retention naturally means less pigment loss to the sewer, less load on save alls. Several mills that have recently switched to "Ti-Pure" HR report savings up to 15% in pigment costs.

### HR has unique properties

"Ti-Pure" HR is a water-dispersible pigment that can be added dry, or used in mills with wet slurry systems. It has outstanding suspension properties, minimizing the problem of settling in the float chambers of the metering pump. HR is not flocculated until alum or other flocculating agents are added and offers opacity and brightness, dry or waxed, similar to commonly used beater grades of anatase $TiO_2$.

**RESULT: BETTER CONTROL** over the pigment content of your papers, more uniform paper quality. Let your Du Pont Pigments Representative tell you about "Ti-Pure" HR. He'll run a demonstration for you that dramatically compares the retention qualities of HR with a standard pigment (see picture left).

*E. I. du Pont de Nemours & Co. (Inc.)*
*Pigments Department, Wilmington 98, Delaware*

**TI-PURE® HR**
(Titanium Dioxide Pigments)

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

# PJT NEWS OF SUPPLIERS

T. A. Costen

J. S. Travers

Paul Goldner

R. W. Ramer

**Columbia Pulp Sales, Ltd.,** distributor for Colombia Cellulose Sulphite pulps and Celgar Kraft pulp, has announced the appointments of Thomas A. Costen and Joseph S. Travers as sales representatives.

Mr. Costen is a graduate of Yale University and the Centre d'Etudes Industrielles of Geneva, Switzerland. He will work from the company's head office in Vancouver.

Mr. Travers received his education in Ottawa at Ashbury College and Carleton University. He will work from the Montreal branch office.

**J. O. Ross Engineering Division,** Midland-Ross Corp., recently announced the appointment of Paul Goldner as district manager of its Seattle office.

Mr. Goldner, an experienced paper mill equipment salesman, presently covers the New York State mills from the New York office. He started with the Ross organization in 1940, after attending the City College of New York.

Mr. Goldner will succeed R. W. Grott who has been the Seattle manager since 1956. Mr. Grott will move to the New York office of Ross, as assistant chief engineer for the division.

**W. S. Tyler Co.** has appointed Ralph W. Ramer manager of its Central District, replacing James W. Sullivan, who has been transferred to the company's headquarters in Cleveland.

Mr. Ramer will be located at the company's new offices for the Woven Screen and Screening Machinery Divisions at 200 South Michigan Avenue, Chicago 4, Ill., and will direct sales of these Tyler products in Illinois, Missouri, Kansas, Oklahoma, Arkansas, and southeastern Wisconsin.

NEW HOME OF WOLVERINE EQUIPMENT CO.—This plant and laboratory at Cambridge, Mass., will be new headquarters of Wolverine, manufacturer of high velocity dryers for the paper and related industries. Occupancy is scheduled for June 20.

**National Starch and Chemical Corp.** has announced that the corporate name of Polimeros, S.A. has been changed to National Starch & Chemical de Mexico, S.A. de C.V. The change in name has been made to bring together the various international operations under the National corporate name.

The manufacturing plant, which is located in Mexico City, is a major producer of polyvinyl acetate polymers, copolymers and adhesives.

**Smith & Winchester Manufacturing Co.,** South Windham, Conn., has named Farhang Javid president, general manager and a member of the board. Mr. Javid joined the 132-year-old paper machinery manufacturer a year ago as vice president of sales and engineering.

Previously Mr. Javid was connected with Black Clawson Co., and Allis Chalmers Mfg. Co. He is a 1947 graduate, University of Illinois, with an M.S. in mechanical engineering.

Farhang Javid

W. D. Jameson

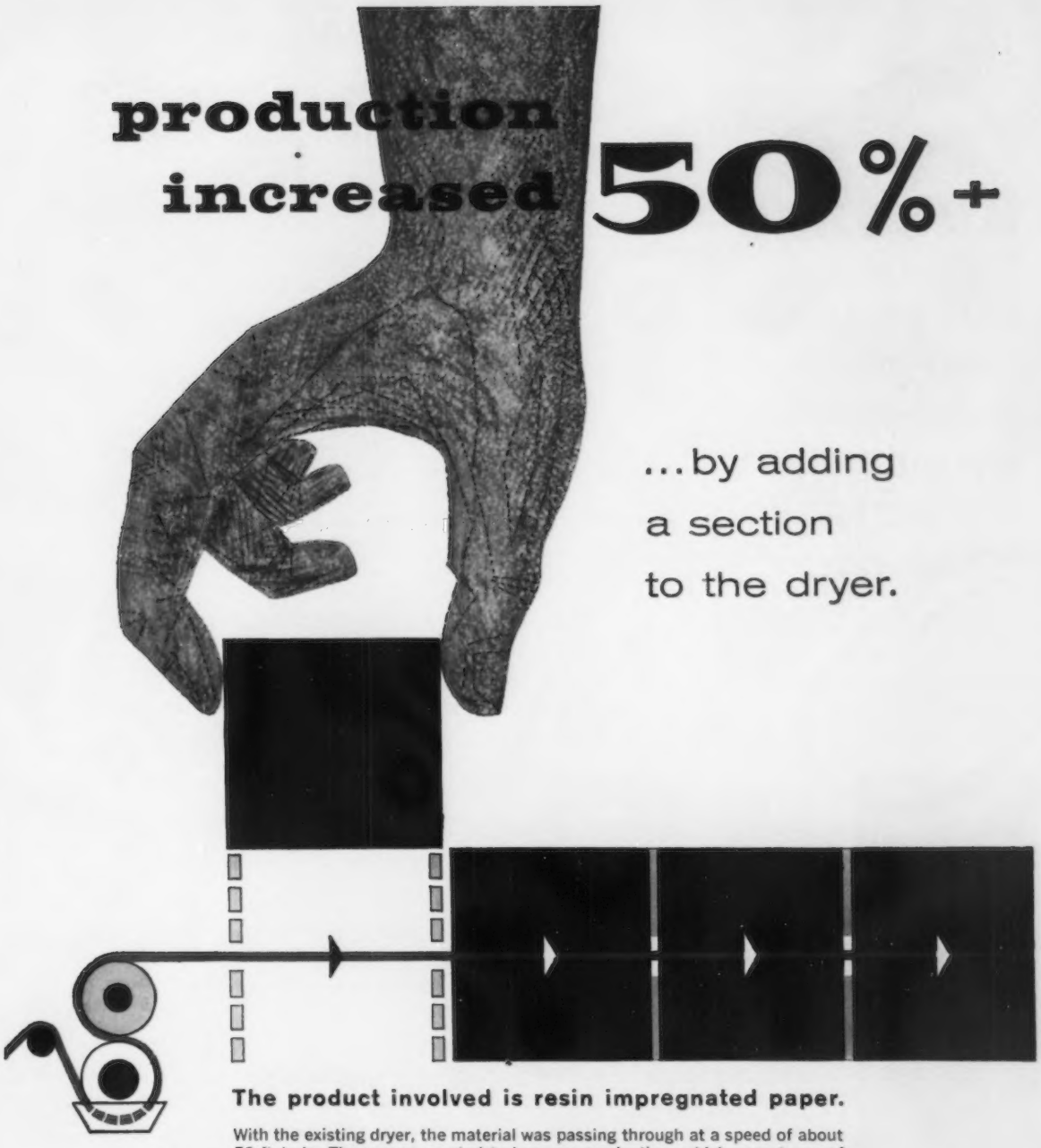
**I-T-E Circuit Breaker Co.,** Philadelphia, has named William D. Jameson manager of the Buffalo district sales office. He will handle sales of I-T-E electrical equipment in western New York and northwestern Pennsylvania.

Mr. Jameson has been recently engaged in consulting work in Miami, Fla. Prior to that, he had served as I-T-E's eastern regional manager for six years.

**Stone & Webster Engineering Corp.** has elected J. Marshall Hamill a vice president. Mr. Hamill is administrative assistant to the president in the Boston office.

**J. O. Ross Engineering Division,** Midland-Ross Corp., recently announced plans for the opening of a new sales office in Mobile, Ala. The office, the ninth in the Ross organization, will be headed by R. C. MacDuffee, currently in the Mt. Prospect, Ill., office. Mr. MacDuffee, a 1948 mechanical engineering graduate of Iowa State College, joined the Ross organization in 1953, after a short tenure with the A. O. Smith Corp.

# production increased 50%+



...by adding a section to the dryer.

**The product involved is resin impregnated paper.**

With the existing dryer, the material was passing through at a speed of about 50 ft./min. The owners wanted to increase production, which meant one of two things: a new line or increased output from the existing line, which, in turn, would call for higher speed. But the existing unit could not operate at a higher speed and do a satisfactory drying job.

Ross Engineers studied the problem and, instead of proposing an additional line, suggested the addition of a section at the head end of the existing dryer. It worked out perfectly. Production was speeded up, output being increased over 50% without a large capital outlay.

Studies of this kind are a significant part of Ross service. They enable owners to decide more intelligently whether an entirely new unit or a modernization of an existing unit should be authorized to obtain the needed increased production.

**J.O. ROSS ENGINEERING**

*Division of Midland-Ross Corporation / 730 Third Ave., New York 17, New York*

ATLANTA • BOSTON • DETROIT • LOS ANGELES • SEATTLE • MT. PROSPECT, ILL.

**BRUSHES**

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PAPER COATING
DAMPENING
POLISHING
FELTING
SPECIAL BOARD POLISHING

GUS RIEDEL & SON

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KALAMAZOO, MICHIGAN


# Figures of the Week

**PAPER PRODUCTION RATIO REPORT**—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

| | | | | | |
|---|---|---|---|---|---|
| | May 28 | June 4 | June 11 | June 18 | June 25 |
| 1960 | 97.3 | 96.2r | 99.0r | 100.1r | 95.1 |
| | May 30 | June 6 | June 13 | June 20 | June 27 |
| 1959 | 91.9 | 94.2 | 95.6 | 96.7 | 96.0 |

r Revised.

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 | 96.7 | 97.9 | 98.3 | 97.0 | 97.5‡ | — | — | — | — | — | — | — | — |
| 1959 | 87.8 | 90.5 | 93.2 | 94.4 | 95.5 | 95.6 | 84.5 | 96.0 | 92.4 | 97.4 | 96.2 | 86.6 | 94.0 |

‡ Preliminary

*All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.*

COMPARATIVE YEARLY SUMMARIES

| | 1953 | 1954 | 1955 | 1956 | 1957 | 1958 | 1959 | 1960 |
|---|---|---|---|---|---|---|---|---|
| Year to Date | 94.2 | 93.5 | 97.3 | 101.1 | 94.5 | 88.0 | 92.7 | 97.6 |
| Year Average | 92.3 | 91.6 | 96.2 | 97.9 | 90.4 | 87.0 | 94.0 | — |

**PAPERBOARD OPERATING RATIOS†**—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

| | | | | | |
|---|---|---|---|---|---|
| | May 28 | June 4 | June 11 | June 18 | June 25 |
| 1960 | 93 | 85 | 96 | 93 | 94 |
| | May 30 | June 6 | June 13 | June 20 | June 27 |
| 1959 | 97 | 88 | 98 | 98 | 98 |

COMPARATIVE MONTHLY SUMMARIES

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | Year Avg. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960 | 92 | 95 | 94 | 92 | 94 | — | — | — | — | — | — | — | — |
| 1959 | 89 | 94 | 95 | 94 | 96 | 96 | 83 | 97 | 92 | 96 | 94 | 80 | 92 |

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

**SUMMARY OF PAPERBOARD STATISTICS**—National Paperboard Assn. Figures

| ITEM | THIS WEEK ENDING June 25, 1960 | LAST WEEK ENDING June 18, 1960 | CUMULATIVE TO DATE Jan. 1 to June 25, 1960, incl. |
|---|---|---|---|
| % Act'vity | 94% | 93% | 93% |
| **Total** | 323,223 | 317,558 | 7,867,697 |
| **Containerboard—Domestic Use** | 161,484 | 166,469 | 4,021,299 |
| Liner | 104,558 | 111,990 | 2,676,939 |
| Corrugating Material | 51,023 | 48,834 | 1,211,452 |
| Chip & Filler Board | 5,903 | 5,645 | 132,908 |
| **Boxboard—Domestic Use** | 106,002 | 99,125 | 2,475,069 |
| Folding | 64,833 | 58,307 | 1,485,937 |
| Set-Up | 11,120 | 10,469 | 281,658 |
| Special Food Board | 30,049 | 30,349 | 707,474 |
| **Other Paperboard** | 55,737 | 51,764 | 1,371,329 |
| Containerboard Type | 25,800 | 24,516 | 647,968 |
| Boxboard Type | 29,937 | 27,248 | 723,361 |
| **Total Orders** | | | |
| Received | 314,504 | 278,086 | |
| Unfilled End of Week | 435,798 | 443,623 | |


*always in the market*

*baltimore*
*chicago*
*detroit*
*jersey city*
*kalamazoo*
*los angeles*
*oakland*
*philadelphia*

PIONEER PAPER STOCK COMPANY

*graders and packers of waste paper*

CHAS. T. MAIN, INC.

*ENGINEERS*

PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION

PULP AND PAPER MILLS

STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING REPORTS, CONSULTATION, VALUATIONS

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BOSTON, MASSACHUSETTS
CHARLOTTE, NORTH CAROLINA

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**Engineers • Designers • Consultants**

Specializing since 1923 in all phases of design, modernization and expansion of pulp and paper mills from forest to finished product.

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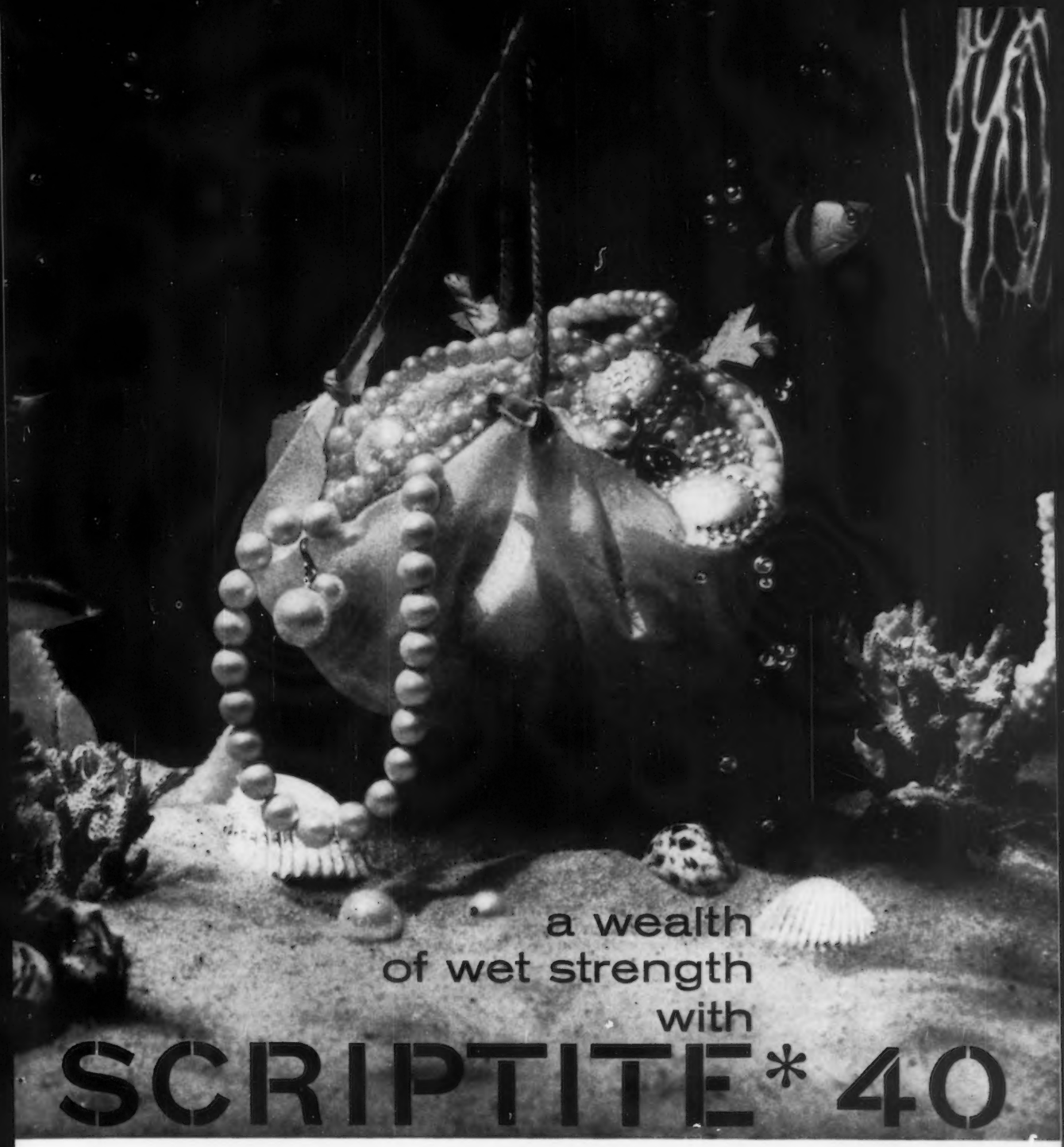
MONTREAL

NEW YORK • MEXICO CITY • PARIS • ZURICH




A cationic urea-formaldehyde resin, Scriptite 40 imparts a high degree of wet strength to paper, with less resin add-on. In addition to raising tensile and wet bursting strength, Scriptite 40 also improves dry tensile strength, dry mullen, wet rub resistance, internal sizing, pick resistance, dry stiffness, dimensional stability, and folding resistance. For technical assistance, samples, and literature, write to Monsanto Chemical Company, Plastics Division, Room 779, Springfield 2, Massachusetts.

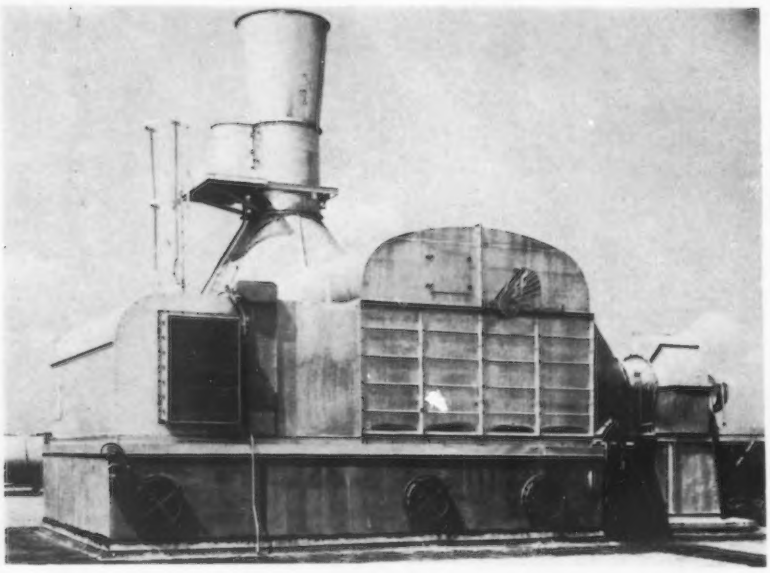
Monsanto®

**MONSANTO** DEVELOPER IN **PLASTICS**

*The Monsanto line of paper resins also includes:* **SCRIPTITE 50** *for unsurpassed printability and improved surface characteristics on boxboard.* **SCRIPTITE 33** *a melamine wet-strength resin.* **SCRIPTITE 52** *in combination with formaldehyde to give water resistance to folding boxboard and to jute liner.* **SCRIPTITE 54** *for outstanding water resistance and both wet and dry rub resistance.*

*SCRIPTITE: Reg. U. S. Pat. Off.

# NEW EQUIPMENT & SUPPLIES



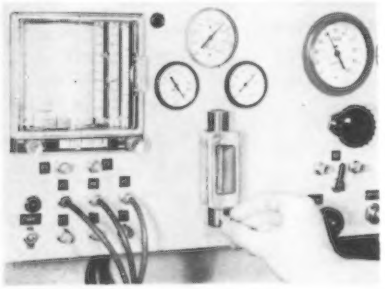
## Custom-Built Units Recover Heat as Well as Ventilate

American SF Products, Inc., 420 Lexington Ave., N. Y., has announced the availability of its heat recovery units to pulp and paper mills. The units, which are installed to fit the needs and capacities of each mill, can serve a dual purpose in that they may be used to ventilate the mill as well as recover quantities of heat.

Heat, recovered from the pulp drying equipment can be reused for pulp drying, providing comfortable mill temperatures in winter and effect a savings in power plant operation. Another side benefit of the units is the fact that with the improved mill ventilation, roof and walls remain dry, thereby cutting building maintenance costs. American SF engineers are available to provide additional information and to tailor installations to individual mill requirements.

## Miniature Meter For Low Flow Applications

A miniature flowmeter tradenamed the Minirator, which has been specifically designed for the measurement of low flow rates of either liquids or gases, has been introduced by Fischer & Porter Co. The Minirator has many of the design features of standard size meters; it is said to be ideal for analytical applications in addition to normal process uses. The tube of the Minirator is of the "snap-in" type, which permits a change in range in a few seconds, without the use of tools. The tube floats between the end fittings on O-ring seals and is free from pipe line vibrations and misalignment stresses; no operating or maintenance adjustments are required. End fittings can be rotated through a full 360° for ease in mounting and the meter is designed so that it may be surface or flush mounted on a panel or installed in-line. Stainless steel side plates and acrylic plastic bezels are provided as standard. The Minirator is available with 1½ inch or 4 inch scales, with or without an integral needle valve, and with the option of brass or stainless steel end fittings. For full information, write Fischer & Porter Co., 551 Jacksonville Road, Warminster, Pa.



## Protects Against Electric Motor Overheating

The Guardistor motor, designed to provide positive inherent motor protection by the use of positive temperature coefficient (PTC) thermistors, is available from the Westinghouse Electric Corp. Motor protection is based on the sensitivity of the PTC thermistors to heat build-up in the motor winding alone, rather than being affected by line currents.

The Guardistor motor can be used for any a-c application and protects against overheating due to: single phasing, locked rotor, too frequent starting, repeated overloads, high ambient temperatures, abnormal voltage conditions, ventilation failures, switch welding (on single-phase motors) and plugging or reversing duties.

The contactless PTC thermistor, a semiconductor, is an integral part of the motor; each is encapsulated in epoxy resin before installation in the motor winding. The encapsulation, plus the motor insulation, provides resistance to moisture, chemicals and oils.

The PTC thermistor is not affected

by temperature until it reaches its predetermined critical temperature which is designed for the limitation of each insulation class and enclosure. At the predetermined temperature, the PTC thermistor has a 100 to 1 positive change in resistance versus temperature. This gives snap-action-type response.

PTC thermistors have been tested

# OPEN

## for business... felts by Huyck

THE Huyck-Smyth Porosity Tester, being used above, is the *only* practical instrument available to measure porosity of running felts. This device . . .

- **determines when cleaning is needed**
- **evaluates performance of cleaning equipment and other machine components**
- **locates filled or plugged streaks**
- **improves water removal**
- **reduces steam consumption**

It is the most important advance in measuring on-machine felt performance since the development of the Huyckmeter.

Originated by T. C. Smyth of Crown Zellerbach and further developed by Huyck, the Huyck-Smyth Porosity Tester is now available to aid the entire paper industry.

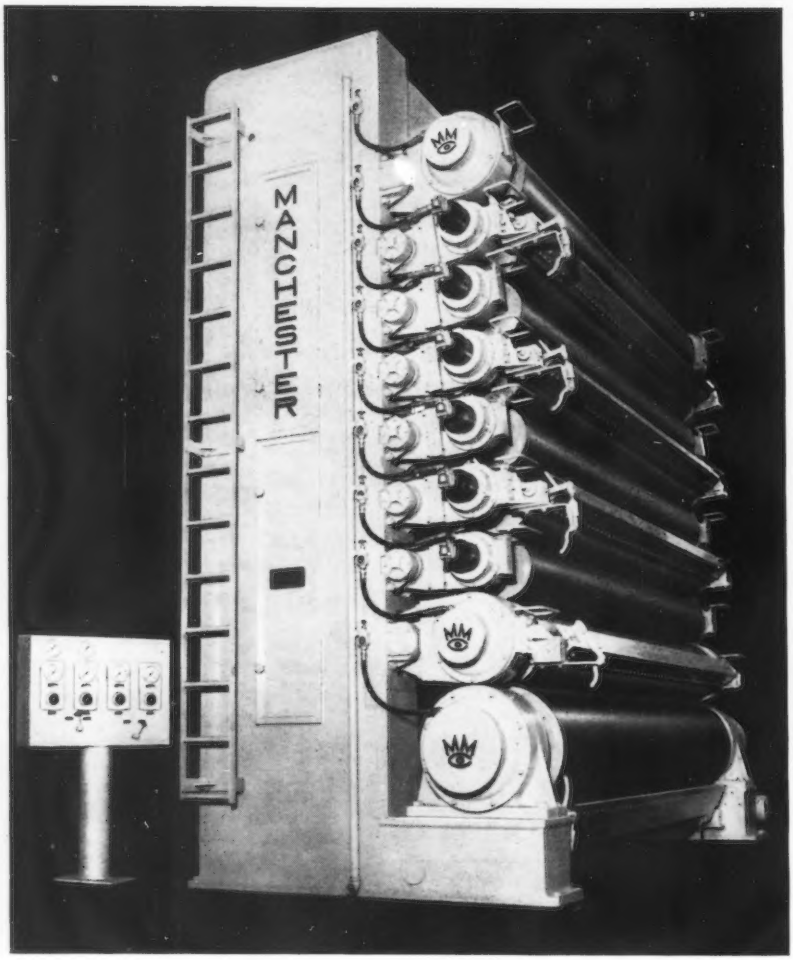
HUYCK FELTS

Huyck Felt Co.,
Rensselaer, N. Y.;
Aliceville, Ala.;
Division of F. C. Huyck & Sons
In Canada: Kenwood Mills Ltd.,
Arnprior, Ontario.

NEW

# HUYCK FELTS ★ INDUSTRIAL FABRICS

FIRST IN QUALITY • FIRST IN SERVICE SINCE 1870




# Manchester gives you everything you want in a calender

*New Manchester nine-roll, 147 inch face open side calender built for Champion Paper & Fibre Company, Hamilton, Ohio*

Here is a truly *new* open side calender *with independent load control of any roll in the stack.* Now you can produce a smoother, more uniform finish on a wider range of fine papers. Another outstanding feature is Manchester's air-over-hydraulic loading system. It permits precise pressure adjustments for all rolls . . . gives you all the advantages of sturdy hydraulic loading . . . *yet uses only ordinary mill air pressure as a power source.* No hydraulic pumps, tanks or motor drives needed!

All loading, unloading and *nip relieving* is accomplished through levers within the rugged, all-steel calender frames. Every adjustment is under finger-tip control from a master console.

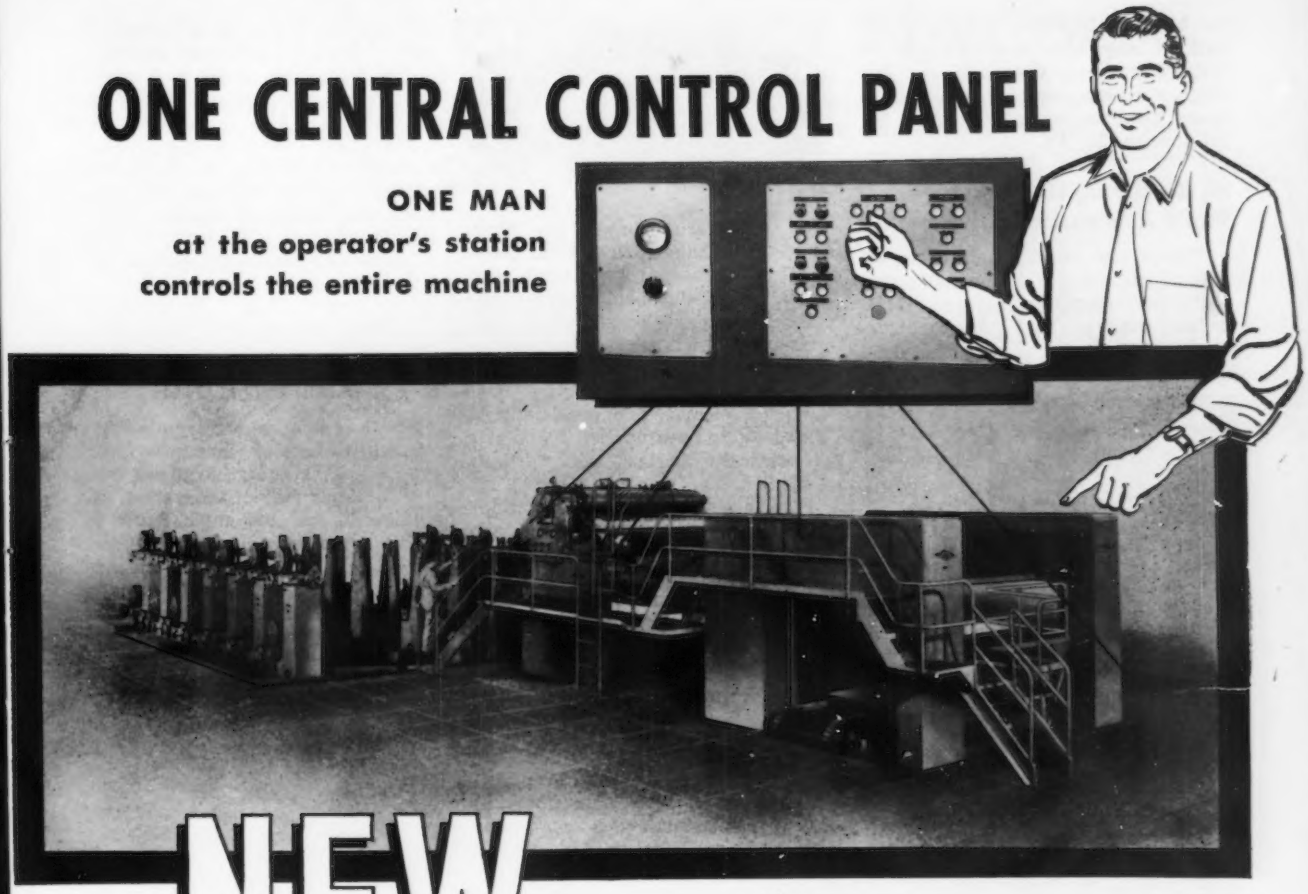
This new calender is another example of how Manchester builds profits for paper makers through *modern*, efficient design concepts. For the new equipment you're planning now, why don't you call in the Man from Manchester? **The Manchester Machine Company, Middletown, Ohio**

*Manchester . . . profit builders for paper makers*

**THE MANCHESTER MACHINE COMPANY**

# ONE CENTRAL CONTROL PANEL

**ONE MAN**
**at the operator's station**
**controls the entire machine**



# NEW *Time-Saving Design!*

## LAMB PRECISION Sheet Cutter-Layboy

**BACKSTAND SHUTTLE-CARRIAGE**
Reduces roll-loading down-time to a minimum.

**AUTOMATIC LAYBOY DISCHARGE**
Layboy discharges 72" high stack (including skid) automatically upon the receiving conveyor. Saves downtime waiting for pick-up.

WRITE for this 8-page brochure describing the LAMB Precision Sheet Cutter-Layboy. No obligation.

Not only is the *new* LAMB Precision Sheet Cutter-Layboy engineered to produce *more sheets accurately* at higher speed; but, as a special LAMB bonus, you also get remarkable *time-saving features*. These give you more working hours per shift — more minutes of machine operation—with consequent higher production volume.

LAMB engineering can assist you in your finishing room problems, help to eliminate waste of time, paper and labor. It will pay you to investigate the LAMB Precision Sheet Cutter-Layboy NOW.

**LAMB-GRAYS HARBOR CO., INC.**
HOQUIAM, WASHINGTON, U. S. A.
PHONE: GEneral 8-1000

far beyond 100,000 switching cycles without any significant change of properties, states Westinghouse. For further information, write Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh, 30, Pa.

### Rigid Coupling Lines Up Shafts Automatically

"Sure-Grip" rigid coupling No. 44 will align and rigidly connect two shafts of diameter up to 5-7/16 inches, reports the manufacturer.

The shafts are clamped by "Sure-Grip" interchangeable tapered bushings, of the same type used with T. B. Wood's V-belt sheaves and pulleys. No press or shrink fits are necessary. The tapered bushings provide the equivalent of a shrink fit when they have been tightened into the rigid sleeve. The precision-machined taper lines up the two shafts automatically as the proper torque is applied.

Five sizes of No. 44 couplings cover a shaft diameter range of from ½ to 5-7/16 inches. Contact T. B. Wood's Sons Co., Chambersburg, Pa., for further information.

Cady Exact 10/1000ths Inch Micrometer

**TEST FOR QUALITY CONTROL**

Cadytest Instruments are designed for accuracy in determining or comparing thicknesses, basis weights, or bursting strengths. They are available in stock models, or specials for specific tasks.

Write for Brochure & Prices

E. J. Cady & Company
*Manufacturers*
676 N. Harlem
River Forest, Ill.

Cady Basis Weight Scales for Papers Tissues, Boards


### Teflon Roll Covers Can Be Reground

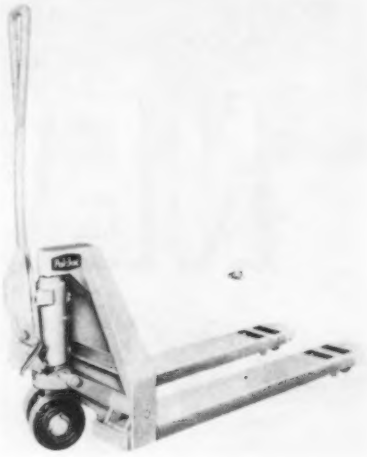
Manhattan Rubber Division of Raybestos-Manhattan announces the availability of a relatively thick Teflon covering for steel, aluminum and bronze rolls. Seamless, homogeneous curing of the Teflon to these metals in thicknesses to .030 inches assures long life to the user without the problems associated with sprayed-on Teflon, such as peeling and rapid wear. Manhattan Teflon roll covers can be reground, if necessary. Adhesion to metal is so complete tests usually result in tearing of the Teflon rather than a loosening at the bond, reports Raybestos-Manhattan.

Numerous applications for the Manhattan Teflon Rolls are anticipated for coating and size drums, and gluing rolls. Teflon's non-adhering characteristics and low coefficient of friction are an advantage for rolls, company spokesman added.

Facilities are presently available to provide coatings up to .030-inch on rolls up to 4 ft. in diameter with a maximum overall length of 15 ft. Greater thicknesses and larger rolls can be handled on a special custom basis. For more information, write: Roll Department, Manhattan Rubber Division, Raybestos-Manhattan, Inc., Passaic, N. J.

### Use of Static Regulators on Paper Mill Drives Gains

Static regulators employing silicon controlled rectifiers are now being proposed as standard equipment on all GE paper mill drive systems, according to the company's Paper Industry Processes Unit, in Schenectady, N. Y. The control unit utilizes all solid state devices and has been designed to functionally replace rotating, magnetic, and gas tube regu-



THE "PAL JAC" hydraulic hand pallet truck is offered in two standard widths 21 and 27 inches with fork lengths of 32, 36, 42 and 48 inches. It has a capacity of 2200 lbs. A pressure sensitive foot pedal device allows fast or slow lowering. The range of elevation is from 3¼ to 7¾ inches for a total lift of 4½ inches. Booster rolls at the ends of the forks facilitate easy pallet entry and a tapered runner helps the forks to slide out of the pallet smoothly.

Two 7 inch diameter floor protective plastic front wheels and four 3¼ inch diameter rear load wheels are all equipped with ball bearings. Write to The Raymond Corp., 191-182 Madison St., Greene, N. Y. for literature.


**Three APMEWS Replaced a Big Room Full of Flat Screens in Bond Paper Mill**

**"Apmew centrifugal pulp cleaners & screens have now been installed and are working very satisfactorily." Centrifugally cleaner, more salable paper is being produced for big profits.**

Occupy 10 feet by 30 feet—SAVE 81 feet by 96 feet

**APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.**

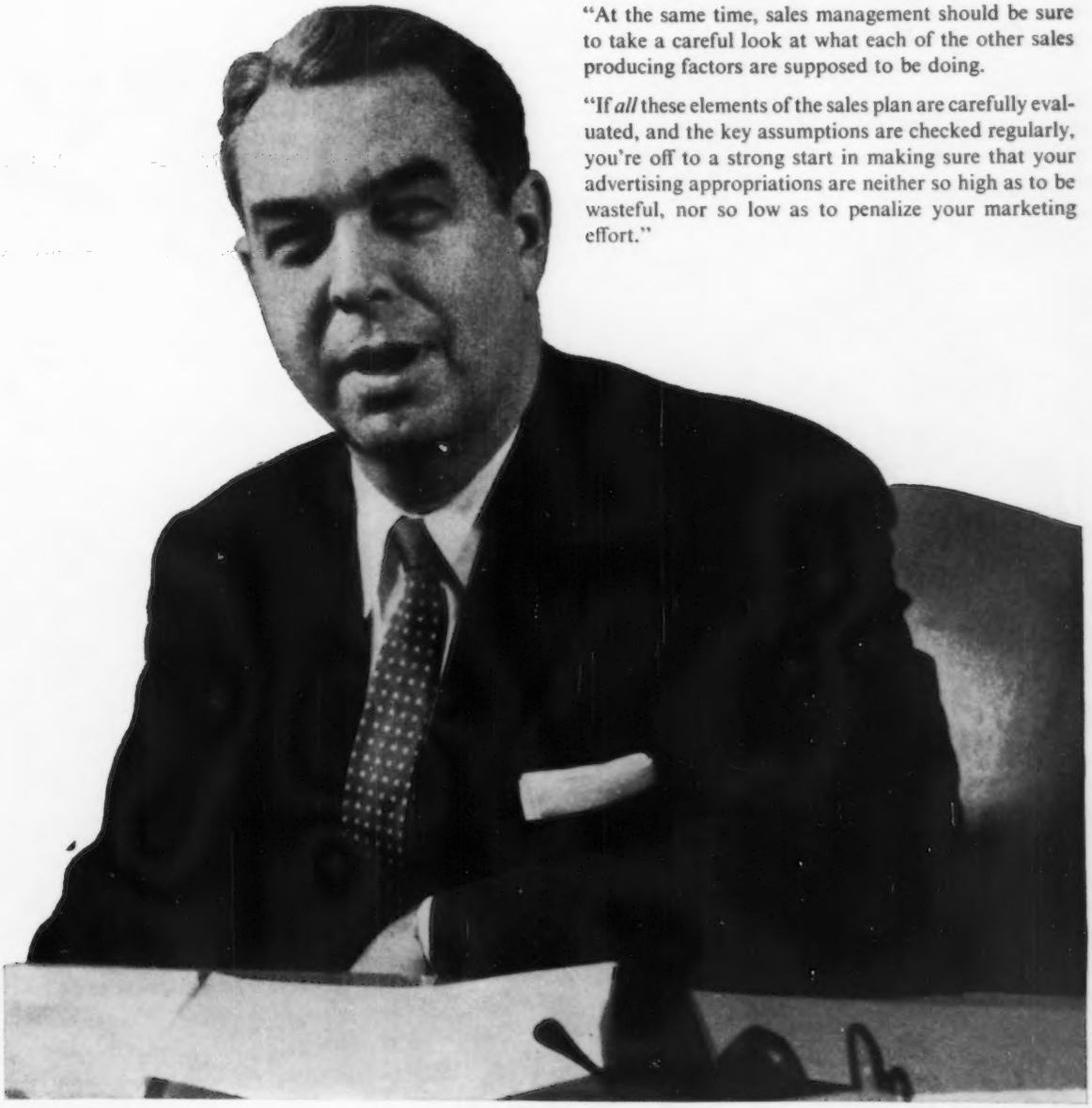
# "How much is enough for advertising?"

**JOHN R. SARGENT, partner in the nationally-known management consultant firm of Cresap, McCormick and Paget, points the way toward solution of one of top management's knottiest problems.**

"Good sales management generally knows the crucial sales problems faced by each one of its products. Through good advertising advice plus experience, trial and error, and some judicious advertising testing, sales management also can come to have a good understanding of what advertising can and cannot do.

"At the same time, sales management should be sure to take a careful look at what each of the other sales producing factors are supposed to be doing.

"If *all* these elements of the sales plan are carefully evaluated, and the key assumptions are checked regularly, you're off to a strong start in making sure that your advertising appropriations are neither so high as to be wasteful, nor so low as to penalize your marketing effort."



AIA

**ASSOCIATION OF INDUSTRIAL ADVERTISERS**

*271 madison avenue • new york 16, n. y. • telephone murray hill 5-8921*

An organization of over 4000 members engaged in the advertising and marketing of industrial products, with local chapters in ALBANY, BALTIMORE, BOSTON, BUFFALO, CHICAGO, CLEVELAND, COLUMBUS, DALLAS, DENVER, DETROIT, HAMILTON, ONT., HARTFORD, HOUSTON, INDIANAPOLIS, LOS ANGELES, MILWAUKEE, MINNEAPOLIS, MONTREAL, QUE., NEWARK, NEW YORK, PHILADELPHIA, PHOENIX, PITTSBURGH, PORTLAND, ROCHESTER, ST. LOUIS, SAN FRANCISCO, TORONTO, ONT., TULSA, YOUNGSTOWN.

J. E. SIRRINE COMPANY

Engineers
Since 1902

Pulp & Paper Mills
Water Supply
Waste Disposal
Steam & Hydro Power Plants
Appraisals
Textile Mills & Finishing Plants
Surveys & Reports

GREENVILLE,
SOUTH CAROLINA

lators. Its inherent speed of response is on the order of 10 times faster than conventional equipment, thus eliminating regulator limitations to drive system performance, report company spokesmen.

Introduced in 1958, these regulators are now being used for controlling winder, helper, supercalender, lineshaft, centerwind reel drives and sectional paper machine drives.

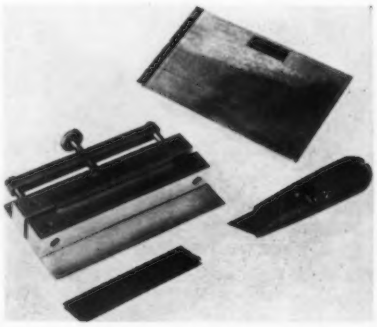
Only about one-twentieth the size of an electronic thyratron tube, these hermetically-sealed, semiconductor control devices are impervious to adverse atmospheres. Their use is said to reduce maintenance and they replace limited-life components as well as those susceptible to contamination and corrosion.

In comparing the silicon controlled rectifier regulators to present methods of control, G. E. Shaad, senior paper mill application engineer, pointed out that, besides its higher speed of response, it is immune to variations in a-c voltage, because the output of the regulators is not affected.

To operate the regulator over its full rating, only minute quantities of control power—as low as a few milliwatts—are necessary. It is unaffected by changes in load resistance and has a linear characteristic over a majority of its output voltage range. Thus, simplified circuitry can be used.

### Test Predicts Container Strength

Testing Machines, Inc., announces the G.E. Column Crush Test, a device for measuring the resistance of



corrugated and solid fiberboard to edgewise compression, to predict the probable crushing resistance of the finished containers to crushing forces as they are subjected under warehouse stacking conditions.

The unit consists of a compression testing machine (generally the Hinde & Dauch Flat Crush Tester) and the associated parts for preparing and gripping the test specimen.

The specimen is prepared by using a special cutting template and cutting knife which exactly fits the template slots. The test specimen is 4 inches long x 1 inch wide with 1 inch dimension parallel to the corrugations unless otherwise specified. After preparation and conditioning the specimens are tested in a special holder. The crushing force is applied until a section of the sample has collapsed. The maximum load required to cause this collapse is recorded as the test result. For complete details write to Testing Machines, Inc., 72 Jericho Turnpike, Mineola, N. Y.

DARLING'S ANIMAL BONE GLUE SERVES THE PAPER INDUSTRY

with Technical Counsel and Product

as an ADHESIVE for
- Gummed Tape
- Gummed Labels
- Tube and Can Winding

and now
- PAPER COATING

as a CHEMICAL for
- improved Retention of fibre and filler
- increased efficiency in Flotation Saveralls

DARLING'S improved BONE GLUE

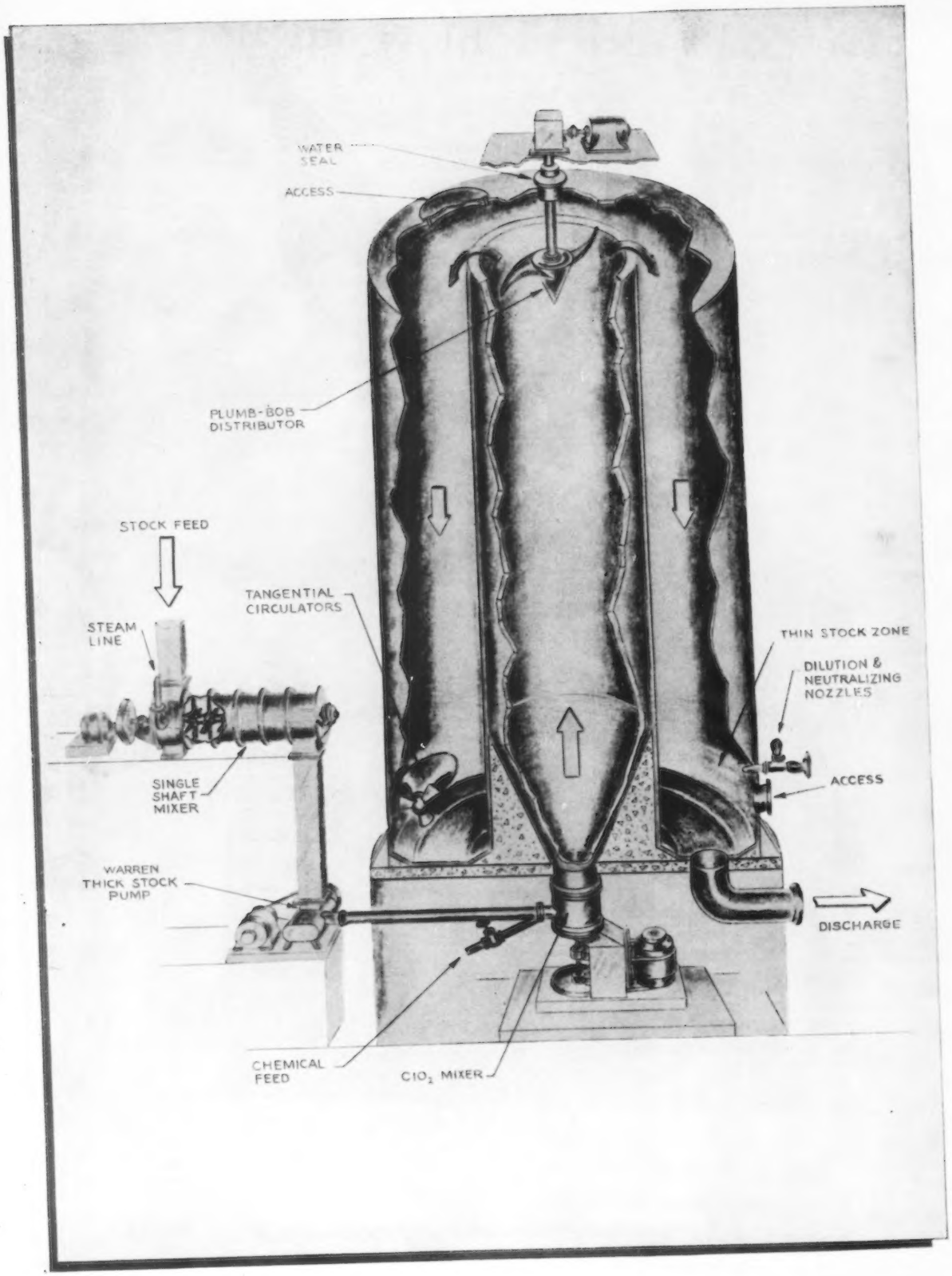
See your DARLING Representative or write DARLING & COMPANY, Glue Division, 4201 South Ashland Avenue, Chicago 9, Illinois

**PAPER TRADE JOURNAL is always mailed on Friday and should be received in most parts of the country early in the week. If there seems to be undue delay in receiving your copy, we suggest that you write your local postmaster, with a copy to the postmaster at East Stroudsburg, Pa., where we mail, and a copy to us.**

# We don't like to "blow our horn"

But, frankly we do make terrifically good WIRES ... economical too, because they wear well and are tailor-made to your specific paper requirements.

WISCONSIN WIRE WORKS
APPLETON • WISCONSIN


WATER SEAL
ACCESS
PLUMB-BOB DISTRIBUTOR
STOCK FEED
TANGENTIAL CIRCULATORS
STEAM LINE
THIN STOCK ZONE
DILUTION & NEUTRALIZING NOZZLES
SINGLE SHAFT MIXER
ACCESS
WARREN THICK STOCK PUMP
DISCHARGE
CHEMICAL FEED
$ClO_2$ MIXER

# NEW DORR-OLIVER TOWER DESIGN CUTS COSTS, IMPROVES $ClO_2$ BLEACHING

- *Low construction cost*
- *Minimum space requirements*
- *Reduced heat loss and power requirements*
- *Lower $ClO_2$ losses, puffs eliminated*
- *Retention time fully controlled, even during emptying*

High density chlorine dioxide bleaching of kraft and other pulps, with improved uniformity and reduced losses, is now possible with a new concentric tower design by Dorr-Oliver.

The design is not only simple and dependable, but also offers the advantage of lower first cost, minimum space requirements and reduced maintenance. Basic features are the concentric construction which combines an inner "upflow" tower with an outer "downflow" cylinder in one compact unit and the use of a specially designed $ClO_2$ mixer and distributor.

Operation consists of introducing the chlorine dioxide to the pulp by means of the mixer at the base of the tower, holding the mixture under hydrostatic pressure in the inner section until 90% of the $ClO_2$ is consumed, and overflowing into the outer downflow section for dilution, neutralization and final discharge. The unique "plumb-bob" distributor at the top of the tower spreads the pulp uniformly over the weir into the downflow section. Retention time can be varied with pulp and tonnage requirements. Standard tile-lined steel construction is used and erection can be either indoors or out.

Successful operation has already been demonstrated in kraft production. Equipment is available for capacities from 100 tons to 800 tons per day. For full information, write Dorr-Oliver Incorporated, Stamford, Connecticut.

***ASK FOR BULLETIN NO. 3307***

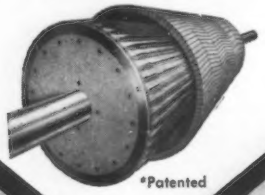
DORR-OLIVER

WORLD-WIDE RESEARCH • ENGINEERING • EQUIPMENT

GULF STATES PAPER

Join the parade of leading mills saving money with

JONES ADAPTA-PLUG*
and
FULBAR FILLINGS



*Patented

CASCADE KRAFT CORPORATION

CHAMPION PAPERS

INTERNATIONAL PAPER

union camp

MEAD papers EST. 1846

St.Regis PAPER COMPANY

E. D. JONES CORP. member BELOIT group PITTSFIELD, MASS.

Jones
PULP MILL EQUIPMENT AND STOCK PREPARATION MACHINERY

# Prices of Fibers

## MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

| | U.S. | Canadian | Swedish | Finnish | Norwegian |
|---|---|---|---|---|---|
| Groundwood | $ 82.50/ 90.00 | $82.50/ 90.00 | §$90.00/ — | §$80.00/ — | §$90.00/ — |
| Bleached Gw'd | $ 97.50/100.00 | $97.50/100.00 | | | |
| Kraft, Blchd. | ‡152.00/160.00 | | | | §157.50/ — |
| Kraft, Blchd. Hdwd. | 152.00/ — | | 140.00/ — | | |
| Kraft, Semi-bleached. | 140.00/145.00 | | | | |
| Kraft, Unbl. | 117.50/125.00 | 125.00/130.00 | †125.00/130.00 | 125.00/ — | |
| Sulphite, Blchd. | ‡150.00/155.00 | ‡150.00/155.00 | *155.00/ — | *155.00/ — | 155.00/ — |
| Sulphite, Bl. Hdwd. | 150.00/ — | | | | |
| Sulphite, Unblchd. | 135.00/ — | 135.00/ — | †135.00/ — | *135.00/ — | |
| Sulphite, Unb'l, Gl'an | | 140.00/ — | †134.00/ — | | |
| Soda, Blchd. | 147.00/150.00 | 150.00/ — | | | |

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.
‡ Depending on Brightness.

## COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED JUNE 28

| | Atlanta | Memphis | Dallas | Los Angeles |
|---|---|---|---|---|
| Grade 1 | n.a. | n.a. | n.a. | n.a. |
| 2 | n.a. | n.a. | n.a. | 9.00/ — |
| 3 | $7.50/7.00 | $8.50/7.50 | $7.50/7.00 | 8.50/8.00 |
| 4 | 7.00/6.25 | 7.25/6.25 | 6.50/6.25 | 7.75/ — |
| 5 | 6.25/5.75 | 6.00/5.50 | 6.00/5.50 | 7.50/7.00 |
| 6 | 5.75/4.75 | 5.25/5.00 | 5.25/5.00 | 6.50/4.50 |
| 7 | 4.75/4.25 | 4.50/4.00 | 4.75/4.00 | 4.25/4.00 |

## WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

| | New York | Boston | Chicago | Los Angeles |
|---|---|---|---|---|
| | July 4 | July 4 | July | July |
| No. 1 Mixed Paper | $ 7.00/ 9.00 | 9.00/ 11.00 | 6.00/ — | 11.00/ 13.00 |
| No. 1 News | 12.00/ 13.00 | 12.00/ 13.00 | 13.00/ — | 12.00/ — |
| Overissue News (Lg. size) | 11.00/ 13.00 | 11.00/ 13.00 | 18.00/ — | 18.00/ 19.00 |
| Mill Wrappers | 19.00/ 22.00 | 13.00/ 15.00 | 9.00/ — | 12.00/ 14.00 |
| Old Corrugated Containers | 22.00/ 23.00 | 19.50/ 20.00 | 20.00/ — | 23.00/ — |
| Super Resorted Kraft Paper | 35.00/ 40.00 | — / — | 30.00/ — | 56.00/ — |
| New Double Kr. Ld. Corr. Cuts | 32.50/ 35.00 | 35.00/ — | 35.00/ — | 35.00/ — |
| (Semi-chem. medium) | 47.50/ — | 47.50/ — | 45.00/ — | — / — |
| New 100% Kraft Corr. Cuts | 40.00/ 42.50 | — / — | 57.50/ — | — / — |
| New Br. Kraft, Env. Cuts | 70.00/ 75.00 | 70.00/ 75.00 | 52.50/ — | 60.00/ — |
| New Br. Kr. Bag Waste Prntd. | 55.00/ 60.00 | 55.00/ 60.00 | 52.50/ — | 55.00/ — |
| New Br. Kr. Bag Waste Unprintd. | 60.00/ 65.00 | 65.00/ 75.00 | 60.00/ — | 60.00/ — |
| No. 1 Groundwood Shvs. | 25.00/ 30.00 | 25.00/ 30.00 | 17.00/ — | 32.50/ 35.00 |
| White Newsblanks | 47.50/ 52.50 | 47.50/ 52.50 | 35.00/ — | 55.00/ — |
| No. 1 Soft White Shvs. | 60.00/ 65.00 | 57.50/ 60.00 | 60.00/ — | 70.00/ 75.00 |
| Super Soft White Shvs. | 65.00/ 75.00 | 75.00/ 85.00 | 70.00/ — | — / — |
| Hd. White Shvs. | 85.00/ 90.00 | 90.00/100.00 | 85.00/ — | 85.00/ 95.00 |
| Hd. White nv. Cuts | 100.00/105.00 | 105.00/110.00 | 90.00/ — | 110.00/113.00 |
| Col. Tab. Cards | 42.50/ 45.00 | 42.50/ 45.00 | 45.00/ — | 40.00/ 45.00 |
| Manila Tab. Cards | 62.50/ 65.00 | 62.50/ 65.00 | 65.00/ — | 70.00/ — |
| No. 1 Col. Ledger | 35.00/ 40.00 | 35.00/ 40.00 | 40.00/ — | 27.00/ 29.50 |
| White Ledger | 48.50/ 52.50 | 50.00/ 55.00 | 50.00/ — | 50.00/ 55.00 |
| Mixed Book & Mag.† | 22.00/ 25.00 | — / — | 12.50/ — | — / — |
| No. 1 Books‡ | 16.50/ 19.00 | 14.50/ 16.50 | 27.50/ — | 13.50/ 14.00 |

† Includes Time & Life; no coarse groundwood. § Not to exceed 10% of groundwood.

## PAPER PEOPLE

*(Continued from page 32)*

superintendent and manager of woods operations. Prior to that, he was engaged in various operations in the construction field and in trucking.

### Scott Paper Fills Newly Created Posts

Forrest W. Brainerd, assistant vice president of Scott Paper Co., has been selected for the newly created position of director of planning.

In this new post he will be responsible for giving leadership to Scott's long-range planning in all areas. A graduate of the University of Pennsylvania and the Institute of Paper Chemistry, he will report directly to James L. Madden, vice president, who is chairman of the company's planning committee.

Philip E. Coleman has been named to the newly created position of director of executive development.

Mr. Coleman will function in close cooperation with the industrial relations division in giving leadership in the areas of development and training of management personnel. In this new post, he will report directly to Andrew J. Schroder, 2nd, Scott's administrative vice president.

Scott Paper Co. has also announced three promotions in production management affecting personnel at plants in Pennsylvania, Washington and Mexico.

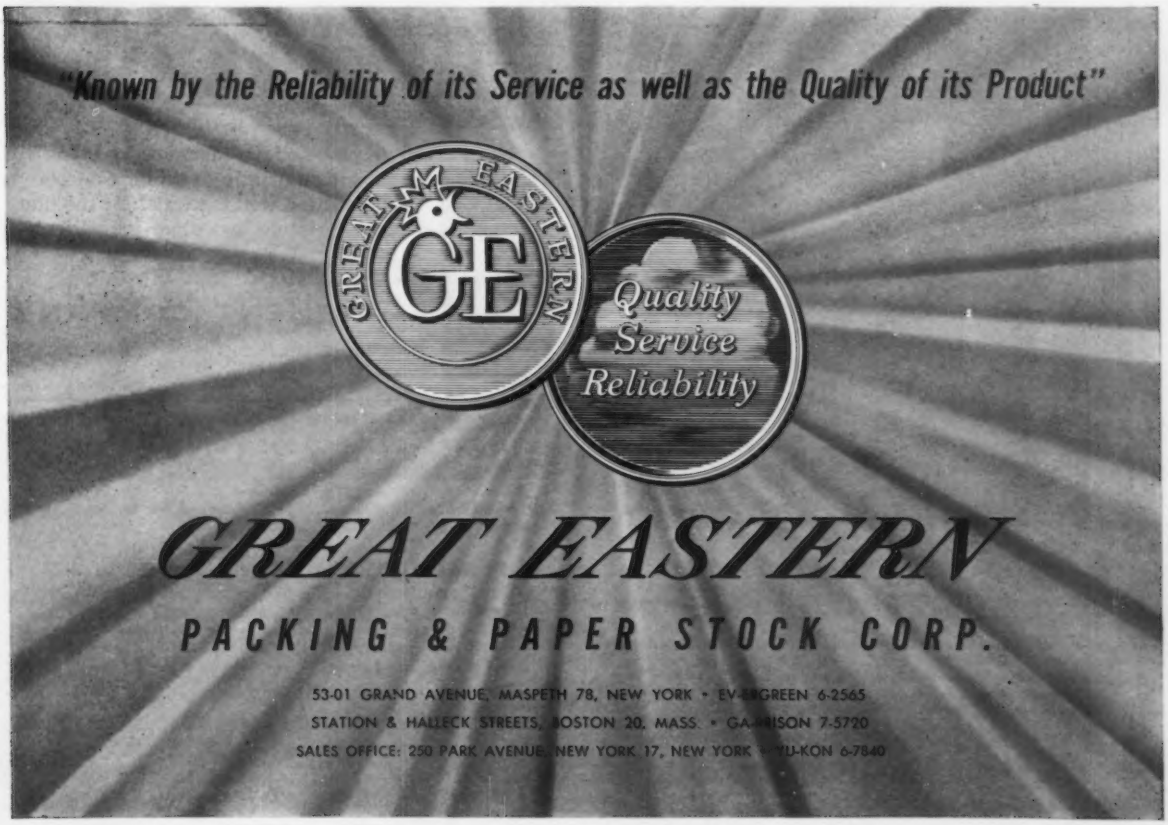
Loren V. Forman, general manager of Scott's West Coast Division, will move to staff headquarters in Chester, Pa., where he will serve as executive assistant to the vice president of production, engineering and research. A graduate of Iowa State College and The Institute of Paper Chemistry, he joined the company in 1950 as staff director of pulp utilization. Three years later he was named technical director at the Everett, Wash., plant, and in 1956 was promoted to his most recent position.

Mr. Forman will be succeeded by Roy L. Davis, executive vice president and director of Compania Industrial de San Cristobal, S.A., a Scott affiliate in Mexico. Mr. Davis was graduated from Bates College in Maine and The Institute of Paper Chemistry in Wisconsin. He joined Detroit Sulphite Pulp & Paper Co. as technical director in 1935. Mr. Davis has served in his most recent post in Mexico since 1955.

Henry S. Godshall, Jr., currently manager of Compania Industrial de San Cristobal, will succeed Mr. Davis. A graduate of Cornell University, Mr. Godshall joined Scott in 1939. Following several assignments in maintenance engineering, he served as manager of plants in Sandusky, Ohio, and Empire, Ore., before becoming production manager at the Fort Edward, N. Y., mill.

In 1953 he moved to the Everett plant where he became administrative assistant to Henry Dennis, vice president. Mr. Godshall was named manager of the Marinette, Wis., plant in 1956. He has managed the Mexico operation since February.

**The editors believe that they have contacted all manufacturers of equipment used in the finishing departments of paper and board mills for information on our survey of new equipment for finishing. If we have overlooked any manufacturers, will they send us promptly information about any new equipment or developments in their products for finishing?**


"Known by the Reliability of its Service as well as the Quality of its Product"
GREAT EASTERN
GE
Quality
Service
Reliability
GREAT EASTERN
PACKING & PAPER STOCK CORP.
53-01 GRAND AVENUE, MASPETH 78, NEW YORK • EVERGREEN 6-2565
STATION & HALLECK STREETS, BOSTON 20, MASS. • GARRISON 7-5720
SALES OFFICE: 250 PARK AVENUE, NEW YORK 17, NEW YORK • YU-KON 6-7840

## Increase Tensile Strength
## Reduce Moisture Pick-up
with
# LUKONITE

A dry asphalt size that offers a new, improved method of incorporating asphalt in paper, paperboard and insulating board.

Easy to use—does not clog wires and felts. Affords added tensile strength and reduces wicking to a marked degree.

*Write for technical details*

**LUKON, INC.**
300 Whitney Street
Leominster, Mass.

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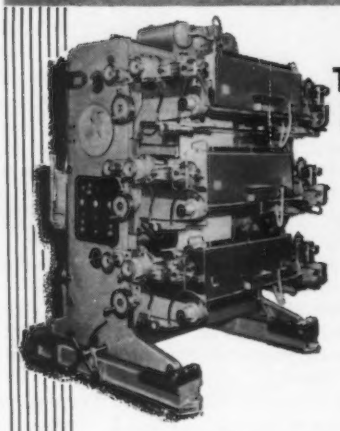
# NEW POTDEVIN Multi-Color FLEXOGRAPHIC PRESSES



*feature*
**TIME-SAVING AUTOMATIC CONTROLS**

Minimum operator attention . . . rigidity of design . . . precise printing even at 1,000 ft. per minute . . . competitively priced.

Designed as end printers for tandem operation with other web fed equipment. The Series 500 POTDEVIN Presses are available in 21", 26", 32", 36", 38" and 42" web widths.

Write for literature describing the many desirable features built into these new POTDEVIN Presses.

ESTABLISHED IN 1893 POTDEVIN

**POTDEVIN MACHINE CO.**
223 North Street, Teterboro, N. J.

Designers and manufacturers of equipment for Bag Making, Printing, Coating, Laminating, Gluing and Labeling

---

# ELIXMAN
## CORES CAPS

Straight wound paper cores made in sizes from 2" to 10" inside diameter with any thickness wall required.

Long draw protected slot caps of heavy gauge steel in all standard sizes.

Heavy duty caps with reenforced square hole. This patented feature of reenforcement gives added strength and durability.

Samples of caps or cores will be gladly submitted

**ELIXMAN PAPER CORE COMPANY, INC.**
CORINTH, N. Y.

---

# HURLETRON

. . . *the* name for precision in automatic electronic controls and inspection machines for the film, paper, printing and other industries.

**ELECTRIC EYE EQUIPMENT COMPANY**
DANVILLE, ILLINOIS

---

# GET THE SCOOP ON SCOOPS

If you have a dryer drainage problem, don't do anything about it until you see the movie—

**"Condensate Behavior in Rotary Dryers"**

This 15 minute sound color film shows what goes on inside a dryer at a wide range of speeds . . . shows why conventional syphons lose efficiency at higher speeds . . . shows how to get condensate out at any speed. For a showing, contact your Armstrong Representative or write direct.

ARMSTRONG STEAM TRAP

**ARMSTRONG SYPHON SCOOPS**
**ARMSTRONG MACHINE WORKS**
8184 Maple Street Three Rivers, Mich.
Manufacturers of Armstrong Inverted Bucket Steam Traps

# AMERICAN AND ENGLISH CLAYS

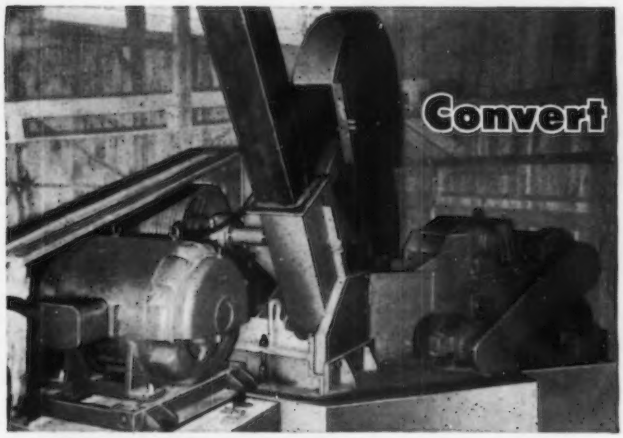
## FOR ALL PAPER MAKING PURPOSES

## ANGLO-AMERICAN CLAYS CORP.

**(Formerly: English China Clays Sales Corporation)**

**6 East 45th Street, New York 17, N. Y.**





Carthage 60" Slab Chipper with horizontal feed. A five knife machine furnished with or without power feed and with gravity or blowing discharge. Capacity approximately 10 cords per hour. A companion chipper to our popular 39" horizontal slab chipper.

**Convert Sawmill Waste into $**

**with a Carthage 60" Slab Chipper**

Slabs, edgings, rounds and other waste wood are fast becoming an important source of chips for pulp mills—an important source of needed profit for hundreds of sawmills.

*Cash in!* There's a Carthage waste-wood chipper (size range 39" to 64") exactly suited to your requirements. Don't miss this big extra income.

**CARTHAGE MACHINE CO.**

**CARTHAGE, N. Y.**

E. L. CROWLEY
3224 N. Fulton Ave.
Hapeville, Ga.
POplar 6-9858

HYMAN SUPPLY CO.
Wilmington, N. C.
ROger 2-5294

MACHINE PRODUCTS CO.
1625 Forrest Ave.
Gadsden, Ala.
Liberty 7-1121

RAY SMYTHE CO.
511 Park Bldg.
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CApitol 3-0502

THE CHESAPEAKE SUPPLY & EQUIPMENT CO.
Forest and Railroad Ave.
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*Another Plant To Serve You*

# SHIP US IN KALAMAZOO

**PACKING PLANTS**
CHICAGO, ILL.
WASHINGTON, D. C.
CAMDEN, N. J.
KALAMAZOO, MICH.
LOUISVILLE, KY.

**THOMAS PAPER STOCK CO.**
1500 N. Hooker St. MO-4-5700 Chicago 22, Ill.

# PAPER TRADE JOURNAL CLEARING HOUSE

## Help Wanted

### PAPER MEN

**$5,000 to $50,000**

**SALES • PRODUCTION • TECHNICAL**

Finding and landing THE ONE BEST JOB requires sound analysis, careful planning, proper contacts and skillful negotiation.

Paper men ourselves, and the only recognized professional specialists in the world in our particular field, we assist responsible paper men to accelerate their careers by uncovering and developing THE SPECIFIC SITUATION that most exactly fits the needs of each individual we serve.

If you seek to better yourself, and your performance to date entitles you to our endorsement, we can and will help you. Contact us in absolute confidence for information regarding procedure.

**GEO. M. SUNDAY & ASSO.**

**PERSONNEL CONSULTANTS TO THE PULP, PAPER & ALLIED INDUSTRIES**

6 East Monroe, Chicago ANdover 3-1970

TF

### SALES ENGINEER

30-40 years of age, Chemical or Mechanical Background—Paper Mill or Paper Mill Equipment Sales Experience. Sales, service and administration. Resume to Box 60-144 care of Paper Trade Journal.

J-11

## Help Wanted

WANTED: Experienced sulfate mill technician to demonstrate plant operation with important new chemical. Give age, past experience and references. Address Paper Trade Journal, Box 60-133.

J-11

### PROJECT CHEMICAL ENGINEER

RECENT GRADUATE IN CHEMISTRY, CHEMICAL ENGINEER, OR PAPER SCHOOL GRADUATE. 2 TO 3 YEARS EXPERIENCE IN ADHESIVES, COATINGS, TEXTILES, PAPER, OR PAPERBOARD PREFERRED. UNDER 30. EXCELLENT ADVANCEMENT OPPORTUNITIES IN TECHNICAL DEPARTMENT OR INTEGRATED MIDWESTERN PAPERBOARD OPERATIONS. SUBMIT DETAILED RESUME TO PERSONNEL DIRECTOR, PACKAGING CORPORATION OF AMERICA, OHIO BOXBOARD DIVISION, RITTMAN, OHIO.

J-11

**Buy U. S. Savings Bonds**

### *FLUID MECHANICS RESEARCH*
### HIGHEST PROFESSIONAL LEVEL

Requiring scientific ingenuity and creativeness of the highest professional order, this opening presents an intriguing opportunity for work in the field of instrumental measurement of the papermaking process.

As scientist and engineer for one of America's oldest and most respected companies, he will work without direct supervision but with the backing of a fine research organization and with the latest equipment; confined by only the very broadest discretionary limits in the use of his own judgment.

Located in a highly favored living area, this is truly an outstanding opportunity for the professionally-minded scientist **and** his family.

**Education:** This man may now be a Ph.D., or have equivalent experience in paper technology.

**Experience:** Since this long-range program is the first of its kind, experience is difficult to specify, but a competent understanding of papermaking with a flair for instrumentation techniques is essential.

Our employees know of this ad, so you may write in complete confidence to: Vice President of Research, Box 60-146 care Paper Trade Journal.

J-18

**Help Wanted advertisements continued on page 80**

## Help Wanted

### WANTED

**Executive Sales Engineer**

Ambitious, aggressive, under 45 years of management calibre with proven record in machinery sales to paper industry. Successful applicant would become Sales Manager. Reply in confidence with complete resume and salary requirement to:

President

**Smith & Winchester Mfg. Co.**

South Windham, Conn.

J-11

### PROCESS CONTROL ENGINEER

An established paper company in the East with expanding manufacturing facilities presents an excellent job opportunity for a chemical, mechanical or electrical engineer interested in developing in the field of process control.

Position demands personable, tactful, individual with willingness to progress. Assignments relate to test, raw material evaluation, process and product improvement. Kindly submit resumé and salary requirements.

Address Box 60-141, care Paper Trade Journal.

J-18

### CHEMIST

For applications research on chemicals for new bleaching procedures and new or improved pulping processes. Challenging opportunity to apply theoretical and practical background for development of new and improved methods and for solving important customer problems. Includes research laboratory work and contacts with customers. Prefer applicants with 1 to 10 years experience in paper or cellulose chemistry.

Complete benefit plans. Location in Central New York near the attractive Finger Lakes Area, the Adirondack Mountains, and the Thousand Islands.

Send detailed résumé indicating salary requirement to:

**Director of Research**
**Allied Chemical Corporation**
**Solvay Process Division**
**Syracuse 1, New York** J-11

SOUTHERN ENGINEERING ORGANIZATION seeks a man interested in the development of a pulp and paper mill design department. Excellent opportunity for an engineer of proven technical and sales ability. Address Box 60-88 care Paper Trade Journal. J-11

# ROSS PAPER MACHINERY CO.

265 PASSAIC STREET • NEWARK 4, NEW JERSEY

Cable Address: "JACKROSS Newark: N.Jer" HUMBOLDT 4-8880

CANADA — 199 BAY STREET, TORONTO, ONTARIO SOUTH — P. O. BOX 2065, MOBILE, ALABAMA

SUPPLIERS OF PAPER MACHINERY TO THE WORLD — RPM

**BAG MACHINERY**
1—S&H 3½" to 10¼" face; 6" to 13" tube pull

**BAG MACHINERY—MULTI-WALL**
1—S&W 1 to 4 ply tuber; PV, SOM, & POM; 10" to 24" face; 22" to 43" pull; w/15 hp VS drive

**BEATERS**
2—3000# Downingtown w/60" face x 67" dia roll; like new

**CALENDER STACKS**
1— 80" P & J 7 roll; heavy duty
2— 82" & 86" Lobdell five roll
1— 96" B-C 6 Roll—heavy duty
1—108" B-C 5 roll
1—104" B-C 8 roll
1—115" B-C 7 roll
2—124" Downingtown 5 roll & 6 roll

**CHIPPERS**
1— 88" Murray 10 knife w/600 hp motor
1— 96" Murray 6 knife; A-F Brng.

**COATERS**
1— 24" Waldron Coater & Embosser
2— 40" Chapman Extrusion Type
2— 65" & 76" Mayers

**COMPLETE MACHINES**
3—Sandy Hill 81" trim single cyl. Tissue
1—M & W 72" Fourdrinier paper machine
1—B-C 100" 2 cyl. Board Machine Complete
1—M & W 72" Yankee Fourdrinier

**CYLINDER MOLDS**
1— 48" face x 42" dia.
2— 63" face x 36" dia w/rubber couches
1— 78" face x 40" dia.
1—106" face x 36" dia
1—107" face x 48" dia; A-F Brng
8—124" face x 36" dia w/rubber couches
1—131" face x 42" dia; A-F Brng
1—136" face x 54" dia; SS covering

**CYLINDER WET ENDS**
Downingtown single cylinder; 99" face x 48" dia.; 18" dia. couch

**DRYERS—HYDROSTATICALLY TESTED**

24" Dia.:
39—46" face; Chrome plated
1—156" face w/gear and steam joint

28" Dia.:
3— 70" face w/gears & bearings
3— 73" face w/gears & bearings
3— 76" face w/gears & bearings
3— 77" face w/gears & bearings
2— 84" face
2— 84" face w/accessories

36" Dia.:
1— 42" face
2— 44" face
2— 46" face
4— 70" face w/gears & bearings
11— 72" face w/gears & bearings
1— 74" face Lukenweld w/A-F Brng
1— 74" face w/gears & bearings
3— 75" face w/gears & bearings
5— 75" face
9— 76" face w/gears & bearings
1— 77" face w/gears & bearings
1— 78" face w/gears & bearings
2— 80" face
5— 84" face
2— 88" face
18— 90" face; complete section
9— 92" face; complete section
1—138" face
10—160" face

42" Dia.:
45— 96" face w/gears, frames & bearings
1—120" face
1—160" face

48" Dia.:
57— 46" face; chrome plated
12— 82" face; complete section
5— 84" face
24—106" face
11—106" face w/gears & bearings
12—110" face w/gears & bearings
10—123" face w/gears, frames & bearings
1—128" face

**DRIVES ENCLOSED RIGHT ANGLE**
1—Beloit 65 h.p. Ratio 2.88 to 1
4—Jones 65 hp Ratio 4.83 to 1
1—Michigan 92½ h.p. ratio 10.1 to 1
1—Phila. 28 h.p. Ratio 10.56 to 1
1—50 h.p. Reliance VS with MG set & controls
1—Cleveland 47 h.p.—ratio 3 5/9 to 1
1—Cleveland 23.5 h.p.—ratio 3 5/9 to 1

**EMBOSSERS**
1— 80" Hudson Sharp; A-F Brng
2— 62" Textile Machinery Co; w/drives

**EXTRACTOR ROLLS—DOWNINGTOWN**
2—139" face x 24" dia.; A-F Brng.
1—128" face x 24" dia.; Complete Section

**FLAT SCREENS**
1— 4 plate Tailing Screen
2— 12 Plate IMPCO w/Dunbar Drives
8— 14 plate IMPCO—Bronze Vats S.S. Plates

**INLETS & HEADBOXES**
1—106" Valley w/8" distributing roll
1—131" Valley w/10" distributing roll; SS lined

**JORDANS**
2—Appleton #1 w/A-F Brng
1—N & W Pony w/75 h.p motors
1—Horne w/AF Brngs
4—Shartle Miami #2 w/A-F Brngs

**MOTORS 3 PH 60 CYCLE**
1—100 hp GE; 440 v; 695 rpm
1—300 hp West; 2200 v; 503 rpm
1—350 hp GE; 2200 v; 720 rpm; Synch

**PAPER MACHINE DRIVES**
1—De Laval 100 h.p. steam turbine w/reducers

**PULP MILL EQUIPMENT**
1—Lannoye #1 Pulper

**PUMPS—OPEN IMPELLER**
1—Shartle 10 x 20 Duplex
23—Centrifugal Stock and Water Pumps

**REELS**
1—100" Kohler automatic two arm unwind reel; 60" dia rolls; new condition
1—109" two bowl upright
1—123" Beloit—2 bowl
1—126" Beloit Aldrich surface drive type
1—146" B & S pope type w/Reliance drive

**REFINERS**
2—Jones Fibremasters—New
2—#1 Claflin; A-F Brng
1—24" Bauer Double Disc w/two 50 h.p. motors
1—24" Downingtown Weiner; new

**ROLL GRINDERS**
1—124" x 30" Farrel w/crowning device
1—208" x 32" Farrel w/crowning device

**ROLLS**

Distributor—Stainless Steel
2— 8" dia. x 115" face
1— 6½" dia. x 115" face

Couch—Rubber Covered
20 Misc. Sizes Dwngs Available

Press—Rubber or Brass Covered
71 Miscellaneous sizes. Drawings available

Felt—Steel, Brass, Rubber Covered
335 Miscellaneous sizes. Drawings available

Calender—Chilled Iron
72 Miscellaneous sizes. Drawings available

**ROTARY SCREENS**
5—Bird #3A, Model 100 w/copper vats
1—Jones & Leithwalk copper lined

**SHEETERS**
5— 56", 60", & 70" Hamblets w/backstands
2— 65" Kidder w/elec. eye and layboy
1— 74" Hamblet w/motor
1— 76" Beloit Duplex
1— 82" Hamblet w/backstand
1— 85" Hamblet duplex w/layboy, 10 roll backstand
1—105" Hamblet
1—112" Beloit Duplex Board Cutter; A/F Brng

**SLITTERS & REWINDERS**

17¾" Maximum Rewind Diameter
1—42" Cameron Type 26-2A

24" Maximum Rewind Diameter
3— 42" Cameron Type 6
1— 42" Cameron Type 6 Shear Cut
1— 62" Cameron Type 8
1— 72" Cameron Type 9-5

30" Maximum Rewind Diameter
1— 60" Langston Shear Cut
1— 72" Cameron Type 10; A-F Brng
1— 72" Cameron Type 10 Shear Cut; A-F

36" Maximum Rewind Diameter
1— 52" Johnstone Model 14H; A-F Brng.
1— 62" Cameron Type 8
1— 70" Variable Speed Center Winder
1— 72" Cameron Type 10; A-F Brng

42" Maximum Rewind Diameter
1— 40" Egan Shear Cut; A-F Brng
1— 60" Kidder Model SH Low Bed
1— 72" Beloit Shear Cut
1— 92" B & S; A-F Brng
1—136" Cameron Type 18; A-F Brng
1—161" Cameron Type 18 w/60 hp Reliance VS Drive

48" Maximum Rewind Diameter
1— 82" Langston Shear Cut; A-F Brng
1— 86" M & W Four Drum Shear Cut
1—110" Langston
1—152" Langston Shear Cut

60" Maximum Rewind Diameter
1—112" Cameron Type 18
1—120" M & W two drum w/75 h.p. drive
1—120" Langston
1—136" Langston Type DA Shear Cut; A-F

**SLITTERS & REWINDERS—DOUBLE REWIND**

18" Maximum Rewind Diameter
1—42" Cameron Type 26-3A, w/constant tension unwind stand

30" Maximum Rewind Diameter
1—42" Essex Shear Cut; A-F Brng.
1—42" Cameron Type 28-3
1—92" Cameron Type 28-3 w/vari-drive

**STOCK CLEANERS**
2—1000 g.p.m. Shartle Hydrafuges w/motors
14—Bird Dirtecs; 2" & 6" bronze
1—Bird Dirtec 12". Rebuilt by Bird
21—4" Vortraps—Bronze
3—Bird Centriflers—Style CFL—S.S.

**STOCK REGULATORS**
2—Braemer SS; 25 t/d cap
2—Poirier; 25T/D cap.

**SUCTION COUCH ROLLS**
1—125" face x 18" dia.—bronze brng.
1—160" face x 30" dia.—roller brng.

**SUPERCALENDERS**
2— 30" Norwood 4 roll
2— 63" Norwood 8 roll; A-F Brng
1— 92" Norwood 7 roll w/drive

**SUCTION EXTRACTOR ROLLS—DOWNINGTOWN**
1—105" face x 19" dia.
1—126" face x 22" dia.; complete section
1—134" face x 20" dia.; A-F Brng.

**SUCTION PRESS SECTIONS**
1—120" face x 18" dia. R.C.—Roller brng.
1—126" face x 24" dia. RC; complete section
1—134" face x 22" dia. Sandusky w/frames, top roll, etc.

**TOWEL FOLDER**
1—Hudson Sharp Model 8T, single fold

**TRIMMERS—POWER BACK GAUGES**
2— 38" Seybold w/motors
1— 57" Seybold Precision
2— 65", 74" Seybold Daytons

**VACUUM PUMPS**
8—H-4, ½H-5, & H-5 Nash
4—L-5 & L-7 Nash
6—#2, #3, #4, #6 & #7 Nash Hytors
1—8 x 10 Connersville
3—MD-2 Nash w/motors; new laboratory models

**YANKEE DRYERS**
1—132" face x 10' dia Beloit; 35 psi

## Help Wanted

### PAPER MILL ENGINEERS

Graduate Mechanical Engineers with at least 2 years pulp and paper mill experience. Work involves design, equipment layout, and project coordination of paper mill projects and related work.

### MECHANICAL ENGINEERS

Graduate Mechanical Engineers to age 35. Duties include piping design, ventilation design, and equipment layout. Prefer applicants with 2 to 5 years pulp and paper mill experience, although others will be given serious consideration.

### ELECTRICAL ENGINEER

Graduate Engineer to age 35 with minimum of 2 years heavy industrial experience required. Work involves designing industrial power systems, drawing up specifications necessary in revamping existing industrial electrical systems, cost estimation, and equipment selection.

### CIVIL ENGINEER

Graduate Civil Engineer to age 35 with at least 2 years experience in structural and/or concrete design. Should be able to follow design work as required for completion of heavy industrial buildings and foundations.

All of the above positions are permanent. Starting salary based on qualifications with periodic merit increases. Complete insurance, retirement, and vacation programs established. All replies will be treated in confidence. Submit resume of experience and qualifications to:

**BOWATERS**
***Industrial Relations Department***
Calhoun, Tennessee

TF

### WANTED
### MACHINE TENDER
(Guatemala)

Experienced on unbleached kraft and bond papers.

Excellent salary. Tax advantages.

Write Box 60-142 c/o Paper Trade Journal

J-11

### CHEMICAL ENGINEER

Large manufacturer of Specialty items in Southeastern Massachusetts has attractive opening for Chemical Engineer with 3 to 10 years' experience in paper or allied field. Position is in Process Development Section of plant employing over 500. Send replies to Box No. 60-138 care Paper Trade Journal giving information on training, experience and salary desired.

J-11

***OPPORTUNITY FOR***

### Chemists and Engineers — Mechanical, Electrical and Chemical

Large, modern, highly instrumented 500 ton per day kraft pulp and linerboard mill of latest and most modern design now being built at Counce, Tennessee.

Openings available for young engineering and chemistry graduates who have some pulp and paper mill experience. A great opportunity for such men to gain comprehensive experience in a new plant and to progress with the future growth of this operation.

Living conditions are fine. Four small communities within twenty miles. Located in an excellent recreational area on the Tennessee River.

If you want to learn and grow in the paper industry this is one of your best opportunities.

*Address inquiries to:*

Personnel Department

**Tennessee River Pulp & Paper Company**

P. O. Box 33 Counce, Tennessee

J-11

## Help Wanted

### PLANT ENGINEER

Nationally known firm near Boston, Mass., has opening for graduate Mechanical or Chemical Engineer capable of directing machine design and plant projects done by graduate engineers. Prefer man with 10 to 20 years' experience as successful Plant Engineer or assistant, thoroughly familiar with good maintenance practices and direction of maintenance crew through Master Mechanic. Should have experience in coating, laminating and printing equipment. Write Box No. 60-139 care Paper Trade Journal giving full information on experience, education and salary expected.

J-11

### Research and Development

Immediate position open in Research and Development Department of absorbent specialty mill located in midwest. Prefer man with degree in chemistry and three years of paper mill experience. Knowledge of saturating papers and saturating resins desirable.

Write to Box #60-135, care of Paper Trade Journal.

J-25

### PAPER CHEMIST

with mill experience in paper and coating wanted for technical sales service. Willing to travel as required. Send resume, photograph and salary required. Replies will be treated in strict confidence. Address Box 60-117 care Paper Trade Journal.

A-15

## Situations Wanted

### CHEMICAL ENGINEER

with long experience and wide acquaintance in Pulp, Paper, Paperboard and Packaging on Pacific Coast, seeks employment in that region, with supplier to these industries.

Desires Sales and Technical Service work.

Willing to travel extensively.

Address Box 60-147 care Paper Trade Journal.

J-18

### PLANT SUPERINTENDENT

Seeks responsible position. Presently employed 10 years with paper converter. Coating, laminating, printing, slitting. 20 years of diversified experience. Engineering background.
Reply Box #60-143, c/o Paper Trade Journal.

J-11

## Business Opportunity

### WANTED

Substantial, money-making business, preferably high grade board mill with carton converting department or cello. and poly bag converting plant. Ready to invest up to one and a half million. Address Box Number 60-145 care of Paper Trade Journal.

J-11

## Help Wanted

*An unusual "OVERSEAS" opportunity*

# MILL MANAGER

for FINE PAPER MILL

The mill is modern and well equipped; it is now producing about 20 tons per day of bleached printing and writing papers.

The position is that of "Mill Manager" and pays a substantial tax-exempt salary—plus free housing, living allowance and other interesting fringe benefits. In addition, there are generous "leave and travel" provisions for both the Manager and his wife. Contract will be for one year and may be extended.

***Enquiries are invited, in confidence, from qualified mill managers—each will be promptly acknowledged. Personal interviews will follow quickly as it is essential that this position be filled without delay.***

**G. HAROLD FISK, P.Eng. Consultant ☆**
**Dominion Square Building, MONTREAL**

☆Consultant . . . to Management seeking Executives, particularly Engineers

J-11

## Help Wanted

## Wanted

**Products and Accounts Wanted:** Established manufacturers agency with trained pulp and paper mill specialists and offices in all principal areas of U.S. and Canada wants specialty equipment to sell on commission basis. Can also arrange for manufacture of your products or inventions.

**DeZurik Sales Company**
260 Bellevue Ave.
P.O. Box 828
Upper Montclair, New Jersey

J-25

## Sales Representation

### Machine Clothing Representative

Well established, growing machine clothing manufacturer needs representation in Pennsylvania, New Jersey, Delaware, Virginia and West Virginia. Prefer man with technical or paper manufacturing background and three to five years experience selling to the paper industry in this eastern area. Age 32 to 45. All expenses, salary and bonus. Send resume, photo and salary requirements. Replies held in strict confidence.

Address Box 60-140 care Paper Trade Journal.

J-11

## For Sale

### FOR SALE
**BARGAIN PRICES**

**1—45" Seybold Dayton**
**1—65" Seybold Dayton**
**1—75" Seybold 20th Century**

The above trimmers are in excellent condition, complete with starting equipment.

*Write—Wire—Phone*

**RUDERMAN MACHINERY EXCHANGE**
**GOUVERNEUR, NEW YORK**
**Telephone 333-334** TF

### FOR SALE

2—1960 Model Aisle Master Lewis Shepard Electric Lift Trucks. Tri Lift mast to 176" with Side Shifter, 36" Forks and 45" x 2¾" Ram—2,000 lb. lift @ 27½" L.C. Address Box 60-130 care Paper Trade Journal. J-11

## For Sale

### *FOR SALE*
***BARGAIN PRICES***

1—110" S.S. Head Box. Complete with Flow Rolls and Stands.
1—110" Pope Reel. B. & S.
1—111" Size Press, A.F. Bearings. B. & S. Spare Rolls.
2—Imco, Standard Deckers, Design #6. 40" Dia. x 96" Cylinder Mold, Steel Tank, C.I. Ends. 10" Inlet, 12" Discharge. Couch Rolls—24" Dia. x 97" Face. Roller Chain Drive.
1—Miami #2 Jordan, New S. S. Fillings.
1—Miami #1 Jordan, C. I. Fillings.
1—E. D. Jones Majestic Jordan, S. S. Fillings.
2—K-5 Nash Vacuum Pumps.
1—45" Seybold Dayton Trimmer.
1—65" Seybold Dayton Trimmer.
1—75" Seybold 20th Century Trimmer.

The above machinery is in excellent condition and we can quote you very low prices.

**WRITE—WIRE—PHONE**
**RUDERMAN MACHINERY EXCHANGE**
**GOUVERNEUR, NEW YORK**
**Telephone 333 - 334** TF

## For Sale

### FOR SALE

60" Waldron micro jet air coater, with air compressor, Reeves motor drive, new 1951.
32" Waldron reverse roll coater with winder and Reeves drive.
2—42" type 6 Camerons, can be inspected while set up operating.
62" ten 10 model 11A Cameron, new 1950, water cooled unwind, still set up as last operated.
84" Seybold Dayton, can be inspected while operating.
84" Seybold precision, can be inspected while operating.
3—Dryers (R.B.) 60" x 55" face, with single deck frame, gears, bearings.
40" Model C Fales with hydraulic lift.
36" Model C Fales with hydraulic lift, new 1951, used about one year.
2—36" Beck.
1—40" Hamblet, still set up, as last operated.
5—Small Lathes, still set up, as last operated, and other machine tools.
112" Duplex Sheet cutter with layboy and 10 roll backstand.
70" Sheet cutter with Moore and White layboy, 10 roll backstand.
62" Camachine type 28-3 BT duplex shear cut slitter, new 1947, with Cameron constant tension unit.
62" Cameron type 8-5.
105" Langston, type CA, anti friction.
52" Type 10 Model 10A Cameron anti friction.
92" Type 10-6 Cameron, anti friction.
48" Cameron, type 6.
45" Cameron, Cellophane slitter, type 26-3A.
152" Type DA Langston.
160" Type 18 Cameron with water cooled unwind, Cameron constant tension unit.
82" Langston, type B, shear cut slitters.
84" Pusey & Jones shear cut slitter, drums 14 x 84".
7 VG 5 PIV units, 4 to 1 ratio.
6 Dryers 48" diameter x 116" face.

**Frank H. Davis Company, Inc.**
P.O. Box 231, Cambridge, Mass.

J-25


If everyone had a health check-up every year, cancer's toll could be cut in half.

Your doctor would have a chance to detect cancer at an early stage, when chances for cure are more favorable.

See your doctor. Soon.

And give generously to the American Cancer Society. Now.

Fight cancer with a checkup and a check

AMERICAN CANCER SOCIETY


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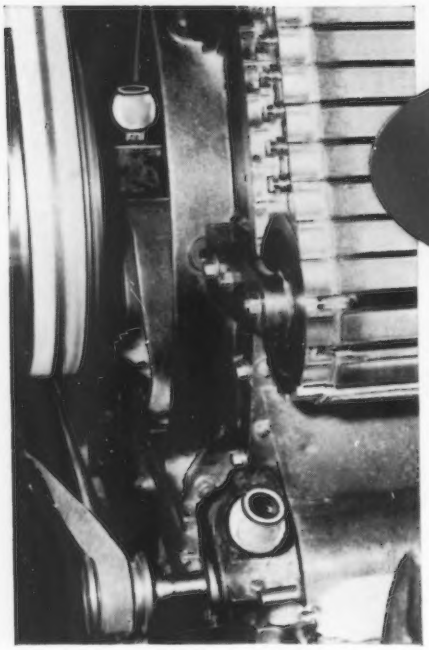

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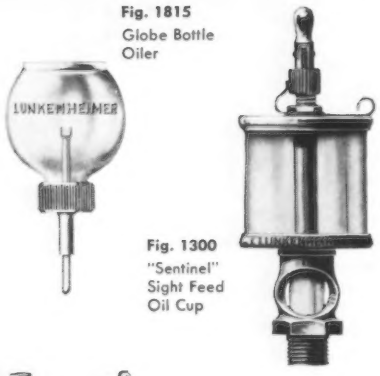


**Fig. 1815**
Globe Bottle Oiler

**Fig. 1300**
"Sentinel" Sight Feed Oil Cup

**Fig. 1183**
Automatic Liquid Gauge

**Fig. 487**
"Major" Drop Feed Lubricator

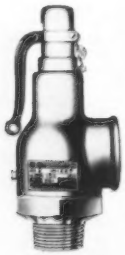

**Fig. 1227**
Pop Safety Valve for Air

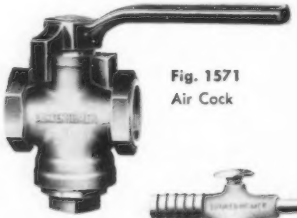

**Fig. 1571**
Air Cock

**Fig. 96**
Air Nozzle Push Button

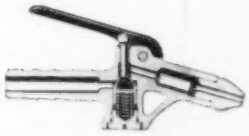

**Fig. 1840**
PT Air Nozzle Lever Handle

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